SERVICE MANUAL FOR

8317

8317
8317
8317

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8317 N/B Maintenance

Contents

1. Hardware Engineering Specification …………………………………………………… 4

1.1 Introduction ……………………………………………………………………………. 4

1.2 System Hardware Part …………………………………………………………………… 5

1.3 ULI M1573 GPIO Pin Re-Define ………………………………………………………… 19

1.4 I/O Ports ………………………………………………………………………………… 20

1.5 Super I/O ………………………………………………………………………………… 26

1.6 H8/Keyboard BIOS Controller ……… ……………………………………………………… 27

1.7 Function Key ……………………………………………………………………………… 38

1.8 Power Specification ……………………………………………………………………… 39

2. System View and Disassembly ………………………………………………………... 47

2.1 System View ……………………………………………………………………………… 47

2.2 Tools Introduction ………………………………………………………………………… 51

2.3 System Disassembly ……………………………………………………………………… 52

3. Definition & Location of Connectors / Switches ……………………………………….. 75

3.1 Mother Board ……………………………………………………………………………... 75

3.2 Audio Jack Board …………………………………………………………………………... 79

3.3 Modem Board ……………………………………………………………………………….... 81

4. Definition & Location of Major Components ……………………………………………….. 82

8317 N/B Maintenance

Contents

4.1 Mother Board 82

5. Pin Description of Major Component 84

5.1 AMD Mobile K8 BGA754_SKT Pin 84

5.2 ATI RS480M North Bridge 86

5.3 ULI M1573 South Bridge 94

6. System Block Diagram 103

7. Maintenance Diagnostics 104

7.1 Introduction 104

7.2 Error Codes 105

7.3 Debug Tool 107

8. Trouble Shooting 108

8.1 No Power 110

8.2 No Display 115

8.3 VGA Controller Test Error LCD No Display 118

8.4 External Monitor No Display 120

8.5 Memory Test Error 122

8.6 Keyboard (K/B)/Touch-Pad(T/P) Test Error 124

8317 N/B Maintenance

Contents

8.7 Hard Disk Drive Test Error 126

8.8 CD-ROM Drive Test Error 128

8.9 USB Port Test Error 130

8.10 Audio Test Error 133

8.11 LAN Test Error 139

8.12 PC Card & Card Reader Socket Test Error 141

8.13 Mini-PCI Socket Test Error 144

9. Spare Parts List 146

10. System Exploded Views 160

11. Reference Material 162

8317 N/B Maintenance

1. Hardware Engineering Specification

1.1 Introduction

This document provides the hardware specification of 8317, 8317 is a high performance notebook based on AMD platform with 17" LCD display. The main system base architecture contains two PCBs, the system Mother Board and the Modem Board.

1.2 System Hardware Part(1)

Item	Description
CPU	- Mobile AMD Athlon 64 62W, “Odessa”, “Newark” - Mobile AMD Sempron 62W, “Dublin”, “Georgetown” - CPU Thermal ceiling: 62W
Core logic	- ATI RS480M + ULi M1573,
L2 Cache	- 256K/512K/1M
System BIOS	- Inside 512KB Flash EPROM - Include System BIOS, VGA BIOS - ACPI2.0; 2.31 compliant - Boot from USB mass storage device
Memory	- 200-pin SO-DIMM DDR Memory Slot x2 - Support DDR333/400 - 0MB Memory onboard; - Expandable to 2.0GB
Video Controller	- Integrate ATI M10c (RS480M) in north bridge - Co-layout local frame buffer 4 chips (64M)
ROM Drive	12.7mm Height - Combo Drive - DVD Dual - DVD Super Multi drive
HDD	One 2.5" 9.5 mm height HDD; - 5400/7200 RPM Serial ATA HDD - 40/60/80 GB Capacity - Support Parallel PATA HDD by option module - Share 8050QD HDD Daughter card without bridge chip - ODD, PATA HDD go individual PATA channel. SATA HDD for SATA channel
Display	17.0”W TFT display; - Resolution WXGA 1440x900 - Resolution WSXGA+ 1680x1050 - Reserve dual channel LVDS display
Keyboard	- Key pitch: 19mm, Key travel: 3.0mm - Windows Logo Key x 2 - W/z Hot Key Functions - Number pad
Touch Pad	- Intelligence Glide pad without scroll button - 2 touch pad buttons
PCMCIA	- Type II x 1 - CardBus Support

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1.2 System Hardware Part(2)

Audio System	- High definition audio spec (Azalia), support S/P DIF output - 7.1 channel analog output - 4.1 channel system speaker. Two tweeter speakers (1W Panel), two full range speakers (2W), one subwoofer (3W) - Build in microphone
I/O Port	***I/O:*** USB (support USB 1.1 and USB 2.0) port x 6 RJ-11 port x 1 (4Pin) RJ-45 port x 1 DC input (2.5*5.5*11mm) x 1 IEEE1394 x 1(4 pin) FIR x 1 Type III B MiniPCI x 1 (For wireless LAN) ***Audio (Normal /7.1Analog output):*** Audio-out (SPDIF) x 1 (Front) (Locate at machine front side) Mic-in x 1 (Center, LFB) (Locate at machine front side) Line-in x 1 (Rear) (Locate at machine rear side) Line-out x 1 (Locate at machine rear side) ***Video*** DVI-Digital x 1 TV-Out x 1 (7 Pin S-Video connector NTSC/PAL) VGA monitor port x 1
Communication	- PCI Giga LAN solution - MDC 56K, V.90 Modem - Blue tooth 1.2 module (MDC Combo solution) - 802.11g wireless LAN (MiniPCI optional) with built-in 2 Antenna - Consumer IR for remote controller
AC adapter	- Universal AC adapter 3 Pin 2.5*5.5*11 90W 19V DC output, Input: 100-240V, 50/60Hz AC
Dimensions	- 393mm x 275mm x 38mm(Max)
Power Supply	- 6/9-cell Li-ion (2200mAH/3.7V) Battery pack
Accessories	- AC Adapter, - Power Cord - RJ-11 cable, (Option)
Architecture	- Support PC2001 specifications; - WHQL-certified for Windows XP Professional/Home edition SP2
Weight	- 3.5KG(TBD)
Options	- 128MB/256MB/512MB DDR SDRAM, 6-cell Li-ION Battery Pack, AC Adapter w/o Power Cord,
Certification	EMI: FCC, CE, CB
	Safety: TUV, UL

1.2.1 CPU AMD Athlon 64 Processor

- AMD64 instructions
- MMX™ and 3DNow!™ technology instructions
- SSE, SSE2 and SSE3 instructions
- L1 data cache (L1 D-Cache) contains 64 Kbytes of storage organized as two-way set associative
- L2 cache contains both instruction and data stream information
- The machine check architecture is defined with ECC single-bit detection/correction and double-bit detection
- The processor includes a 16-bit Hyper Transport™ technology interface designed to be capable of operating up to 1600 mega-transfers per second (MT/s) with a resulting bandwidth of up to 6.4 Gbytes/s (3.2 Gbytes/s in each direction)
- The processor's memory controller provides a programmable interface to a variety of standard DDR SDRAM DIMM configurations
- Both lidded and lidless processors provide the following power management features designed to be compliant with the Advanced Configuration and Power Interface (ACPI) Specification and Hyper Transport™ technology
- When the HLT instruction is executed, the processor stops program execution and issues a Halt special cycle

- AMD64 instructions
- When the processor recognizes the STPCLK assertion message, it will enter the Stop Grant state on the next instruction boundary and issue a Stop Grant special cycle
- After RESET_L is deasserted, BIOS must program the appropriate clock divisor in the memory controller configuration registers
- The processor provides an on-die thermal diode with anode and cathode brought out to processor pins
- Both lidded and lidless processors provide a hardware enforced thermal protection mechanism

1.2.2 ATI RS480M

1.2.2.1 CPU Interface

- Supports the mobile and desktop AMD Athlon 64 and Athlon 64 FX processors
- Supports 200,400,800,and 1000MHZ Hyper Transport (HT) interface speeds
- Supports dynamic link width and frequency change
- Supports LDTSTP interface, CPU throttling, and stutter mode

1.2.2.2 Memory Interface

- Optional dedicated frame buffer (side-port) configuration for a 32-bit or 64bit interface and up to 128MB of memory
- Supports for GDDR memories
- Supports for 2M*32(with 64-bit interface only), 4M*32,8M*32,and 16M*16 memory devices
- Asynchronous Hyper Transport and memory controller interface speeds
- Supports GDDR SDRAM self refresh mechanism
- Supports dynamic CKE for power conservation (for GDDR SDRAM only)

1.2.2.3 PCI Express Interface

- Compliant with the PCI Express 1.0a Specifications
- 1*16 graphics interface, which can be divided into two smaller links for use by other devices
- Up to four *1 PCI Express general-purpose links

1.2.2.4 A-Link Express Interface

- 1*2(expandable to *4) A-link Express interface (PCI Express 1.0a compliant) for connection to the ATI IXP

1.2.2.5 2D Acceleration Features

- Highly optimized 128-bit engine, capable of processing multiple pixels per clock
- Hardware acceleration of Bitblt, Line Draw, Polygon/Rectangle Fill, Bit Masking, Monochrome Expansion, Panning/Scolling, Scissoring, and full ROP support(including ROP3)
- Optimized handling of fonts and text using ATI proprietary techniques
- Game acceleration including support for Microsoft's DirectDraw: Double Buffering, Virtual Sprites, Transparent Blit, and Masked Blit
- Supports a maximum resolution of 2048*153632bpp
- Acceleration in 8/15/16/32bpp modes
- Significant increase in the High-End Graphics WinBench score due to capability for C18 color expansion
- Setup of 2D polygons and lines

- Support for new GDI extensions in Windows 2000 and Windows XP: Alpha BLT, Transparent BLT and Gradient Fill
- Hardware cursor (up to 64*64*32bpp), with alpha channel for direct support of Windows 2000 and Windows XP alpha cursor

1.2.2.6 3D Acceleration Features

- Multi-texturing via one texture-blending unit per pixel pipes, allowing up to thirty-two texel reads per pixel in a single pass
- 3D Texture support for bump mapping: emboss, dot product and environment bump maps
- Improved precision in anisotropic filtering and bilinear filtering
- Complete 3D primitive support: points, lines, triangles, lists, strips and quadrilaterals and BLTs with Z compare
- Improve texture composting
- Supports 2536*253632bpp
- Hidden surface removal using 16,24,or 32-bit Z-buffering (maximum Z-buffer depth is 24 bits when stencil buffer enabled) and Early Z hardware

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- 8-bit stencil buffer
- Bilinear and trilinear texture lighting
- Dithering support in 16 bpp for near 24-bpp quality in less memory
- Extensive 3D mode support
- Anti-aliasing using multi-sampling algorithm with support for 2,4,and 6 samples
- Optimized for full performance in true color triple buffered 32bpp acceleration modes
- New generation rendering engine provides top 3D performance
- Support for OpenGL format for Indirect Vertices in Vertex Walker
- Full DirectX 9.0 support (Vertex Shader version 2.0 and Pixel shader version 2.0)
- Support for Microsoft's next generation GDI+ user interface

1.2.2.7 Motion Video Acceleration Features

- Video scaling and fully programmable YC

1.2.3 ULI M1573

1.2.3.1 PCI Bridge

- Supports up to 7 external PCI masters
- Parity check on PCI bus AD and CBE# signals
- Fully supports PCI Configuration Space Enable (CSE) protocol
- Fully compliant with PCI Rev. 2.3
- Supports delayed transactions
- Dynamic memory prefetch algorithm and programmable post write flush algorithm
- Supports concurrent PCI bus burst transfers with zero wait-state
- PCI Power Management Interface spec. 1.1 Compliant

1.2.3.2 USB Controller

- Compliant with USB2.0 specification
- Compliant with OHCI 1.0a specification
- Compliant with EHCI 1.0 specification

1.2.3.3 HD Audio Controller

- Azalia spec 0.7 compliant
- 1 SDO sharing by all CODEC
- 3 SDI for 3 CODEC
- 6 output streams
- 5 input streams
- Corb support with sizes of 2, 16 & 256
- RIRB support with sizes of 2, 16 & 256

- Immediate command/response interface
- FIFO sharing technology
- Max output sample rate: 8 channel, 32-bit, 192kHz
- Max input sample rate: 8 channel, 32-bit, 96kHz

1.2.3.4 System Management Bus(SMB)

M1573 internal System Management Bus (SMBus) host controller is designed based on System Management Bus Specifications Rev 2.0. It can communicate with the system clock generator and DRAM SPD via SMBus protocol.

1.2.3.5 Serialized IRQ

M1573 supports Serialized IRQ protocol and thus allows a device using the signal SERIRQ to request for interrupt service. M1573 Serialized IRQ provides 21 frames including IRQ0, IRQ1, SMI#, IRQ3~IRQ15, IOCHCK#, INTA#, INTB#, INTC# and INTD#. Moreover, its operating mode (quiet or continuous) and Start Frame Pulse Width (4/6/8 CICLK periods) are also programmable.

1.2.3.6 Advanced Power Management Controller(M7101)

The Power Management Unit fully supports ACPI specifications and legacy power management functions including: SMM, Stop clock control unit, APM, External SMI-switch control and Programmable counters for time-out event generation.

M1573 can provide G0 (ON, Standby), G1 (S1: Power On Suspend, S3: Suspend To RAM and S4: Suspend To Disk), G2 (Soft-Off) and G3 (Mechanical-Off) global system states to minimize the overall system power consumption. M1573 also provides an extra Standby state for monitoring over 16 peripheral devices' activity.

M1573 supports programmable Stop Clock with Throttle/ Stop Grant/ Stop Clock control for fitting the ACPI C0-C3 clock states. M1573 provides several hot plugging events detection and multiple external wake-up events for satisfying the notebook requirements. M1573 supports the battery, thermal detected logic and system/chip/devices power plane management logic. M1573 provides full support for Advanced Configuration and Power Interface (ACPI), On Now technology and OS Directed Power management (OSPM). M1573 also supports the legacy power management control, such as SMM and SMI features.

1.2.3.7 IDE Controller

- Both two channel support ATA/ATAPI 7
- Both two channel support up to PIO4, MDMA2 and UDMA5/6

- Both two channel support Native and Compatibility Mode
- Can Combine with SATA port0 and port1 in Compatibility Mode
  - SATA port0/1 as channel1, PATA channel 2 as channel2
  - PATA channel1 as channel 1, SATA port0/1 as channel2

1.2.3.8 SATA Controller

- Implement 4 SATA port support SATA Gen 1 1.5G
- Both 4 SATA ports support AHCI 0.98a
- Master Only Emulation to support legacy driver in Native Mode
- Master/Slave Emulation for legacy driver in Combine Mode
- Support SATA II features
- Support Native Command Queue (First party DMA)

1.2.4 Memory

- No onboard memory
- Two 200-pin DDR SDRAM Memory Module
- Support DDR333/400

1.3 ULI M1573 GPIO Pin Re-Define

Pin Num	**Name**	**Type**	**Power Plane**	**Current Define**	**Notice**
Y4	RUNGPIO [0]	I/O	MAIN POWER WELL	LCD_ID0	
AF2	RUNGPIO [1]	I/O	MAIN POWER WELL	LCD_ID1	
AB5	RUNGPIO [2]	I/O	MAIN POWER WELL	LCD_ID2	
AB6	RUNGPIO [3]	I/O	MAIN POWER WELL	MUTE#	When MUTE key is pushed, Southbridge will pull low this pin.
E28	RSMGPIO [0]	I/O	MAIN POWER WELL	NA	
E29	RSMGPIO [1]	I/O	MAIN POWER WELL	SW_2.5V/2.6V	Power system auto switch DDR work voltage according to DDR type
C29	RSMGPIO [2]	I/O	MAIN POWER WELL	EXT_SMI#	
D29	RSMGPIO [3]	I/O	MAIN POWER WELL	SCI#	

1.4 I/O Ports

1.4.1 CRT Port

- Standard VGA compatible port

1.4.2 RJ-11

- Connection to Mini-PCI Modem card
- Support 56Kbps / V.92

1.4.3 RJ-45

- The Fast Ethernet LAN Connector features an IEEE802.3 and IEEE802.3x compliant supporting full duplex 10 Base-T, 100 Base-T and 1000 Base-T Ethernet
- LAN PHY: RTL8110SBL

1.4.4 USB2.0 Port

The USB2.0 Host Controller includes one high-speed mode host controller and three USB1.1 host controllers. The high-speed host controller implements an EHCI interface that provides 480Mb/s bandwidth for six USB 2.0 ports. The three USB1.1 host controllers implement an OHCI interface and each USB1.1 host controller provides 12Mb/s bandwidth for two USB 1.1 ports. Each of six USB ports can be automatically routed to support a High-speed USB 2.0 device or Full- or Low-speed USB 1.1 device. Besides, each port can be optionally configured as the wake-up source. Legacy USB devices as well as over current detection are also implemented.

- Two industry standard USB 2.0 Ports (Backward compatible to USB 1.1)
- Support maximum transfer rate up to 480 Mbits /S

1.4.5 LCD Port

- 595 Mbps/channel with 85MHz pixel clock rate
- Integrated dual 24-bit LVDS interface
- Programmable internal spread spectrum controller for the LVDS signals
- Provides fixed resolution displays from scale VGA Low Resolution Mode up for LCD Display to 640 x480 or up to 1600 x1200

- Support DVI, DFP, and VESA P&D digital interface

1.4.6 IEEE 1394

The integrated 1394a host controller complies with 1394 Open Host Controller Interface Specification 1.1, IEEE 1394-1995 and IEEE 1394a-2000. The bus transfer rate of 100, 200, 400 Mbits/s is supported and both Asynchronous and Isochronous data transfers are supported as well. With external 1394 physical layer chip(IC FW802C), it can support up to two 1394 ports to connect with 1394 devices.

1.4.7 CardBus

The Texas Instruments PCI7411 controller is an integrated single-socket UltraMedia PC Card controller, IEEE 1394 open HCI host controller and PHY, and flash media controller. This high-performance integrated solution provides the latest in PC Card, IEEE 1394, SD, MMC, Memory Stick/PRO, SmartMedia and XD technology.

The PCI7411 controller is a four-function PCI controller compliant with *PCI Local Bus Specification*, Revision 2.3. Function 0 provides an independent PC Card socket controller compliant with the *PC Card Standard* (Release 8.1). The PCI7411 controller provides features that make it the best choice for bridging between the PCI bus and PC Cards, and supports Smart Card, Flash Media, 16-bit, CardBus or USB custom card interface PC Cards, powered at 5 V or 3.3 V, as required.

All card signals are internally buffered to allow hot insertion and removal without external buffering. The PCI7411 controller is registering compatible with the Intel 82365SL-DF ExCA controller. The PCI7411 internal data path logic allows the host to access 8-, 16- and 32-bit cards using full 32-bit PCI cycles for maximum performance. Independent buffering and pipeline architecture provide an unsurpassed performance level with sustained bursting. The PCI7411 controller can be programmed to accept posted writes to improve bus utilization.

Function 2 of the PCI7411 controller is compatible with IEEE STD 1394a-2000 and the latest *1394 Open Host Controller Interface Specification*. The chip provides the IEEE1394 link and 2-port PHY function and is compatible with data rates of 100, 200 and 400 Mbits per second. Deep FIFOs are provided to buffer 1394 data and accommodate large host bus latencies. The PCI7411 controller provides physical write posting and a highly tuned physical data path for SBP-2 performance.

Function 3 of the PCI7411 controller is a PCI-based Flash Media controller that supports Memory Stick, Memory Stick-Pro, SmartMedia, XD, SD and MMC cards. This function controls communication with these Flash Media cards through a passive PC Card adapter or through a dedicated Flash Media socket. In addition, this function includes DMA capabilities for improved Flash Media performance.

Function 4 of the PCI7411 controller is a PCI-based SD host controller that supports MMC, SD and SDIO cards. This function controls communication with these Flash Media cards through a passive PC Card adapter or through a dedicated Flash Media socket. In addition, this function is compliant with the *SD Host Controller Standard Specification* and includes both DMA capabilities and support for SD suspend/resume.

1.4.7.1 PCI Bus Power Management

Controller is compliant with the latest PCI Bus Power Management Specification and provides several low-power modes, which enable the host power system to further reduce power consumption.

1.4.7.2 Power Switch Interface

Controller also has a three-pin serial interface compatible with the Texas Instruments TPS2228(Default), TPS2226, TPS2224 and TPS2223A power switches. All four-power switches provide power to the CardBus socket(s) on the PCI7x21/PCI7x11 controller. The power to each dedicated socket is controlled through separate power control pins. Each of these power control pins can be connected to an external 3.3-V power switch.

1.4.8 Audio Port

- Microphone In, Line Out, Line In
- Built in 4 high quality internal speakers (3W), two are on the panel, two are on the top
- SPDIF out

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- Support 7.1 channel Azalia
- Microphone shares with central and low frequency channel
- Line Out shares with front right and front left channel
- Line In shares with surround right and left channel
- SPDIF shares with side surround right and left channel
- Built in microphone

1.5 Super I/O

- LPC Bus
- W83L517D Controller
- Infrared (IR) port

The Infrared (IR) function provides a point-to-point (or multi-point to multi-point) wireless communication which can operate under various transmission protocols including IRDA 1.0 SIR, IrDA 1.1 MIR (1.152 Mbps), IrDA 1.1 FIR (4 Mbps), SHARP ASK-IR and remote control (NEC, RC-5, advanced RC-5 and RECS-80 protocol.

1.6 H8/Keyboard BIOS Controller

CPU

- Sixty-five basic instructions
- Sixteen 16-bit general registers also usable as sixteen 8-bit registers or eight 32-bit registers
- Eight addressing modes
- 16-Mbyte address space
- High-speed operation
- Two CPU operating modes
- Power-down state

MCU Operating Modes

- MCU Operating Mode Selection
- SYSCR selects a system pin function, monitors a reset source, selects the interrupt control mode and the detection edge for NMI, pin location selection, enables or disables register access to the on-chip peripheral modules and enables or disables on-chip RAM address space
- STCR enables or disables register access

Exception Handling

- Exception handling may be caused by a reset, interrupt, direct transition, or trap instruction
- A reset has the highest exception priority
- The interrupt controller controls interrupts
- Trap instruction exception handling starts when a TRAPA instruction is executed

Interrupt Controller

- Two interrupt control modes
- Priorities settable with ICR
- Independent vector addresses
- Thirty-one external interrupts
- DTC control

Bus Controller(BSC)

- Basic bus interface
- Burst ROM interface

8317 N/B Maintenance

- Idle cycle insertion
- Bus arbitration function

Data Transfer Controller(DTC)

- Transfer is possible over any number of channels
- Three transfer modes
- One activation source can trigger a number of data transfers (chain transfer)
- Direct specification of 16-Mbyte address space is possible
- Activation by software is possible
- Transfer can be set in byte or word units
- A CPU interrupt can be requested for the interrupt that activated the DTC
- Module stop mode can be set

I/O Ports

- This LSI has ten I/O ports (ports 1 to 6, 8, 9, A, and B), and one input-only port (port 7)

8317 N/B Maintenance

8-Bit PWM Timer(PWM)

- Operable at a maximum carrier frequency of 625 kHz using pulse division (at 10 MHz operation)
- Duty cycles from 0 to 100% with 1/256 resolution (100% duty realized by port output)
- Direct or inverted PWM output, and PWM output enable/disable control

14-Bit PWM Timer(PWMX)

- Division of pulse into multiple base cycles to reduce ripple
- Two resolution settings
- Two base cycle settings
- Four operating speeds
- Four operation clocks (by combination of two resolution settings and two base cycle settings)

16-Bit Free-Running Timer(FRT)

- Selection of four clock sources
- Two independent comparators
- Four independent input capture channels

8317 N/B Maintenance

- Counter clearing
- Seven independent interrupts
- Special functions provided by automatic addition function

8-Bit Timer (TMR)

- Selection of clock sources
- Selection of three ways to clear the counters
- Timer output controlled by two compare-match signals
- Cascading of TMR_0 and TMR_1
- Multiple interrupt sources for each channel

Timer Connection

- Five input pins and four output pins, all of which can be designated for phase inversion. Positive logic is assumed for all signals used within the timer connection facility
- An edge-detection circuit is connected to the input pins, simplifying signal input detection
- TMR_X can be used for PWM input signal decoding
- TMR_X can be used for clamp waveform generation

8317 N/B Maintenance

- An external clock signal divided by TMR_1 can be used as the FRT capture input signal
- An internal synchronization signal can be generated using the FRT and TMR_Y
- A signal generated/modified using an input signal and timer connection can be selected and output

Watchdog Timer (WDT)

- Selectable from eight (WDT_0) or 16 (WDT_1) counter input clocks
- Switchable between watchdog timer mode and interval timer mode
- Watchdog Timer Mode
- Internal Timer Mode

Serial Communication Interface (SCI and IRDA)

- Choice of asynchronous or clocked synchronous serial communication mode
- Full-duplex communication capability
- The on-chip baud rate generator allows any bit rate to be selected
- Choice of LSB-first or MSB-first transfer (except in the case of asynchronous mode 7-bit data)
- Four interrupt sources

I^2C Bus Interface (IIC) (Optional)

- Selection of addressing format or non-addressing format
- Conforms to Philips I2C bus interface (I2C bus format)
- Two ways of setting slave address (I2C bus format)
- Start and stop conditions generated automatically in master mode (I2C bus format)
- Selection of the acknowledge output level in reception (I^2C bus format)
- Automatic loading of an acknowledge bit in transmission (I2C bus format)
- Wait function in master mode (I2C bus format)
- Wait function (I^2C bus format)
- Interrupt sources
- Selection of 16 internal clocks (in master mode)
- Direct bus drive (SCL/SDA pin)
- Automatic switching from formatless mode to I2C bus format (IIC_0 only)

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Keyboard Buffer Controller

- Conforms to PS/2 interface specifications
- Direct bus drive (via the KCLK and KD pins)
- Interrupt sources: on completion of data reception and on detection of clock edge
- Error detection: parity error and stop bit monitoring

Host Interface X-Bus Interface (XBS)

- Control of the fast GATE A20 function
- Shutdown of the XBS module by the HIFSD pin
- Five host interrupt requests

Host Interface LPC Interface (LPC)

- Supports LPC interface I/O read cycles and I/O write cycles
- Has three register sets comprising data and status registers
- Supports SERIRQ
- Eleven interrupt sources

8317 N/B Maintenance

D/A Converter

- 8-bit resolution
- Two output channels
- Conversion time: Max. 10 µs (when load capacitance is 20 pF)
- Output voltage: 0 V to Avref
- D/A output retaining function in software standby mode

A/D Converter

- 10-bit resolution
- Input channels: eight analog input channels and 16 digital input channels
- Analog conversion voltage range can be specified using the reference power supply voltage pin (AVref) as an analog reference voltage
- Conversion time: 13.4 µs per channel (at 10-MHz operation)
- Two kinds of operating modes
- Four data registers
- Sample and hold function

8317 N/B Maintenance

- Three kinds of conversion start
- Interrupt request

Power-Down Modes

- Medium-speed mode
- Subactive mode
- Sleep mode
- Subsleep mode
- Watch mode
- Software standby mode
- Hardware standby mode

1.6.1 H8S/2140B GPIO Pins Re-Defined from HOOK

Hitachi H8S/2140B to ULI M1573 pin function definitions for Inside code.

Index	Pin Num	Hook Definition	8317 Re-definition	Notice
1	81	AMP_PROT	CAP_LOCK	Use this pin to driver LED when CPA key in keyboard is pushed.
2	57	NA	NUM_LOCK	Use this pin to driver LED when NUM key in keyboard is pushed.
3	50	H8_TV_DECT#	PLAY	When Instant Play is pushed, this pin will be pulled low to indicate that H8 would execute some code to play the CD.
4	54	TP726	VGA_THERMAL	When this pin is pulled high H8 would know that VGA working temperature is higher than 60 degree.
5	58	RESERVE_LED2#	LOCK#	When this Pin is pulled low, H8 would know that locks instant play function.

1.7 Function Key

1.7.1 Switch

Mute: When this switch is pushed, H8 will send message to Southbridge and make it send signal through GPIO to do Mute function

Backward: For Instant play function, when this switch is pushed, H8 would execute scanning code to do backward function

Forward: For Instant play function, when this switch is pushed, H8 would execute scanning code to do forward function

Stop: For Instant play function, when this switch is pushed, H8 would execute scanning code to do stop function

These four switches is scanned by H8

Play: When this switch is pushed, it will send signal to H8 and make it execute scanning code to do play function

WLAN On_Off: When this switch is pushed, it will send signal to mini-PCI and make it do on/off action

Bluetooth On_Off: Disable Bluetooth functions

Lock SW: When this switch is pushed, it will send signal to H8 and make it to lock all instant play functions

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1.8 Power Specification

- +1.2VLDTA: Main Power Source that turns off in S3
- +NB_CORE: Main Power Source that turn off in S3
- +3V: Main Power Source that exist only the system is power on
- +3VS: Main Power Source that turns off in S3
- +5V: Main Power Source that exist only the system is power on
- +5VS: Main Power Source that turns off in S3
- VDD3: Auxiliary power that exist regardless the system is power down or power up
- VDD5: Auxiliary power that exist regardless the system is power down or power up
- +1.8VS: Main Power Source that turn off in S3
- +2.5V: Main Power Source that provides 1.25V for the termination of the signal of DDR
- +1.25V: Main Power Source that provides 1.25V for the termination of the signal of DDR
- +1.25VS: Main Power Source that turns off in S3
- +VCC_CORE: Main Power Source it can match AMD MOBILE K8

- D/VMAIN: Power supply from AC adapter or battery for main power

1.8.1 Battery Management Definitions

1.8.1.1 Li-ION Battery Packs 1

- Battery Type: Li-ION
- Battery Cells: 9 Cells
- Battery Specs: 11.1V/6000mAh with 3.7V/2000mAh / Cell
- Battery Output Power - Total: 66.6 watts
- Smart Battery
- Battery Protections: Over Charge Protects, Over Discharge Protects, Over Temperature Protects and Over Current Protects

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1.8.1.2 Battery Gauge

- Gas Gauge IC packed into Battery Packages
- Supports SM Bus V.1.0 Specs
- Supports SM Bus Master Mode for Battery Low Broadcast

1.8.2 Battery Warning

1.8.2.1 Low Battery Warning

When the Current Capacity of the Battery Pack is Less Than or Equal to 10% Capacity, the indicator will turn to flashing in blue.

1.8.2.2 Smart Battery Charger

A Normal Battery Charger IC is used to Charges the Battery. The Embedded Controller H8 controls charge IC. The H8 will Emulate Smart Battery Interface needed to Talking with Smart Battery Packs.

1.8.2.3 Battery Gas Gauge Views Utilities

Windows98 SE, Windows ME, Windows 2000, Windows XP and Power.exe in DOS. Battery Gas Gauge can be quick Pop-Up on Screen in any time.

1.8.3 Power Supplies

1.8.3.1 General Description

- The DC/DC (on board) can support:
  - +VCC_CORE, +NB_CORE,+1.25V, +1.2VLDTA
  - +2.5V, +5V, +3V, +5VS, +3VS, +1.8VS for the M/B.

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1.8.4 Electronically Specifications

DC OUTPUT					
Voltage	Tolerance	Ripple & noise	Line / load regulation	Transient response	A. Max current (Total)
+5V	±5％	250mVp-p	±2.5％	500mVp-p	5A
+3V	±5％	165mVp-p	±2.5％	330mVp-p	4A
+2.5V	±5％	125mVp-p	--- / ±2.5％	250mVp-p	4.5A
+1.25V	±5％	62.5mVp-p	--- / ±2.5％	125mVp-p	3A
+NB_CORE	±5％	60mVp-p	--- / ±2.5％	120mVp-p	5A
+1.2VLDTA	±5％	60mVp-p	--- / ±2.5％	120mVp-p	4A
+1.4V@1.8G (+VCC_CORE)	When frequency of cup is 1.8GHZ,Vo=1.4V,Imax=42.7A. When system enter into S3, Frequency of cpu is 800MHZ,Vo=0.95v, Imax=11.4a				

Note: The following output ripple/noise requirements shall be meet throughout the load range and under input voltage from 8Vdc to 21Vdc. Measurements shall be made with an oscilloscope with 20MHZ bandwidth output shall be bypassed at connector with a 0.1uF ceramic capacitor and a 10 uF electrolytic capacitor to simulate loading.

1.8.4.1 Input

Input voltage range: 8V~12.8Vdc (Battery) or 18.6V~21.4Vdc (Adaptor)

Adapter: 19V @ 5A, 90W constant voltage mode

Battery: Li-Ion Battery Pack 9 Cells (3S3P) DC 11.1V

1.8.4.2 Inrush Current

Condition	All operation condition turn on/off 1 second at all of input power source. 40 degree C air ambient.
Limit	No damage shall occur or components over stress, input fuse shall not blow.

1.8.4.3 Efficiency

A. +5V&3.3V: (1) 88% min (@+5V/5A,+3.3V/4A & Vin : 19V-from adaptor)

(2) 90% min (@+5V/5A,+3.3V/4A & Vin : 8V-from battery)

B. +2.5V: 88% min (@+2.5V/4.5A & Vin = DNMAIN)

C. +1.05V: 88% min (@+1.2V/5A & Vin = DNMAIN)

D. VCORE (+1.4V typ.): 76% min (@+1.4V/42.7A & Vin : DVMAIN)

1.8.4.4 Protection Requirements

A-1. Over voltage protection activated when (VCORE) output voltage over 7.5% (max) of normal value

A-2. Over voltage protection activated when (+2.5V_DDR_P,) output voltage over 1.0V (max) of normal value

B-1. Vcore: 60A

B-2. +5V: 8~12A

B-3. +3.3V: 8~12A

C. Short Protection activated when +VCC_CORE, +3.3V_P,+5V_P,+2.5V _P,+1.25V_P, +1.2V_P output short circuit the dc/dc converter output voltage shutdown or holding

Note: The OVP&OCP&SCP protection shall cause the system no fire or no smoke**.**

1.8.4.5 Transient Response

The transient response is measured by switching the output load from 0 to 50 and 50 to 100 percent of its full value at a frequency of 100Hz and 50% duty cycle, step load change is 1.0A/µsec. The recovery time is less than 1ms and the regulation shall be less than the unit of output spec**.**

1.8.4.6 Power Up Overshoot and Undershoot

Power up overshoot and undershoot must be within tolerance of each output voltage spec.

1.8.4.7 System Overall Leakage Current

When system only connects DC-battery , it’s leakage current though from battery 12.6V under 1mA at system power off .

1.8.4.8 Environment

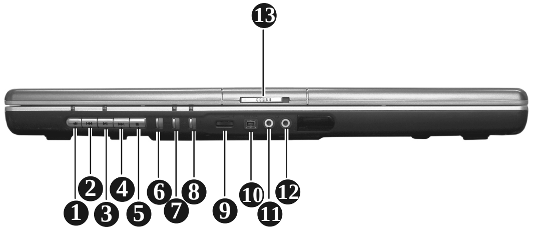
ITEM	CONDITION	LIMITS	
TEMPERATURE	OPERATION	0℃	40℃
	STORAGE	-20℃	70℃
HUMIDITY	OPERATION	20％	80％
	STORAGE	10％	90％

2. System View and Disassembly

2.1 System View

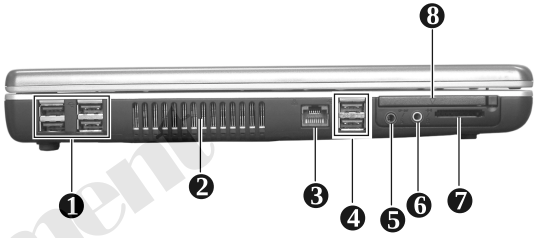
2.1.1 Front View

❶ Mute Button
❷ Forward Button
❸ Play Button
❹ Backward Button
❺ Stop Button
❻ Holder On/Off
❼ WLAN On/Off
❽ Blue Tooth On/Off
❾ Volume Control
❿ IEEE1394 Port
⓫ Line Out Connector
⓬ Line In Connector
⓭ Top Cover Latch



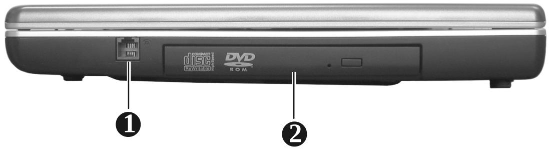
2.1.2 Left-side View

❶ USB Ports *4
❷ Ventilation Openings
❸ RJ-45 Connector
❹ USB Ports *2
❺ SPDIF Out Connector
❻ Line In Connector
❼ SD/MMC/MS Carder Socket
❽ PCMCIA Card Socket



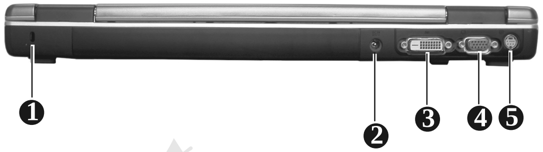
2.1.3 Right-side View

❶ RJ-11 Connector
❷ CD/DVD-ROM Drive



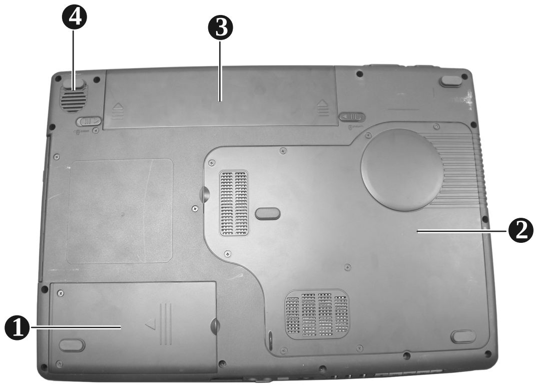
2.1.4 Rear View

- ❶ Lock
- ❷ AC Power Connector
- ❸ DVI Port
- ❹ VGA Port
- ❺ S-Video



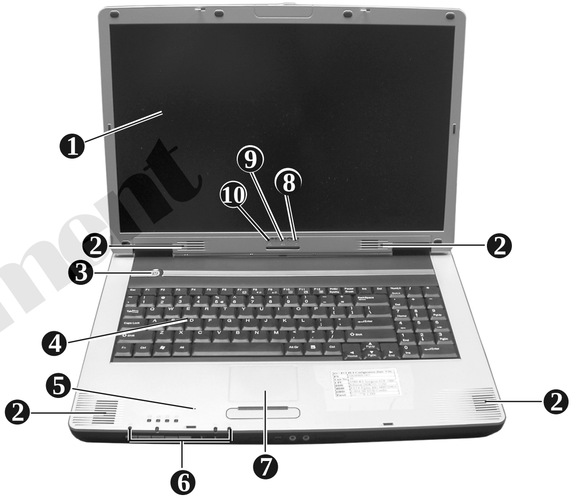
2.1.5 Bottom View

- ❶ Hard Disk Drive
- ❷ CPU
- ❸ Battery Pack
- ❹ Stereo Speaker Set



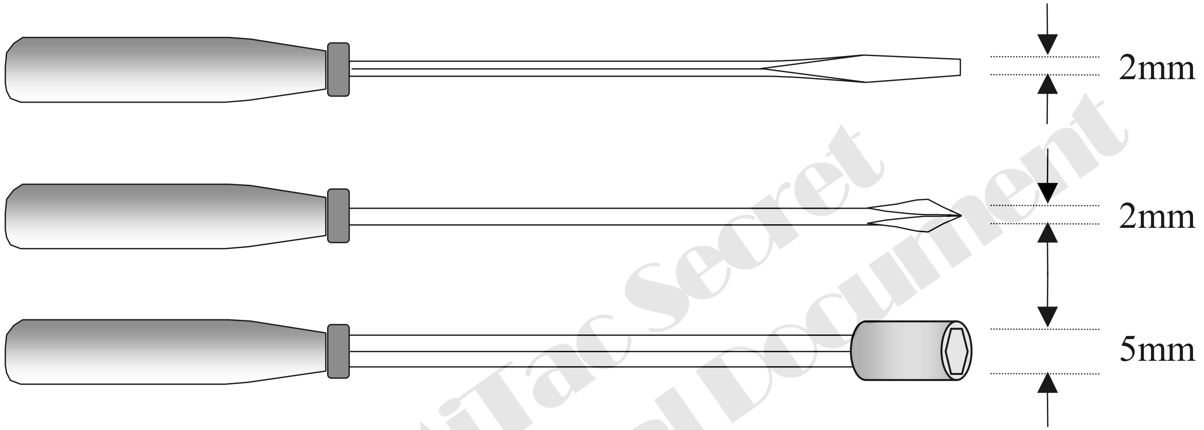
2.1.6 Top-open View

❶ LCD Screen
❷ Stereo Speaker Set
❸ Power Button
❹ Keyboard
❺ Internal MIC In
❻ Device LED Indicators
❼ Touch Pad
❽ AC Power Indicator
❾ Battery Charge Indicator
❿ Battery Power Indicator

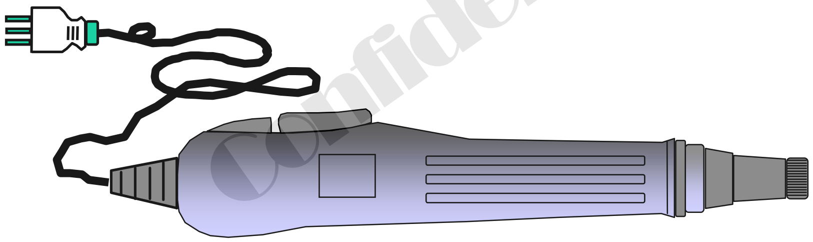


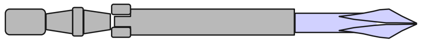
2.2 Tools Introduction

1. Minus screw driver with bit size 2mm for notebook assembly & disassembly.



2. Auto screw driver for notebook assembly & disassembly.





Bit Size

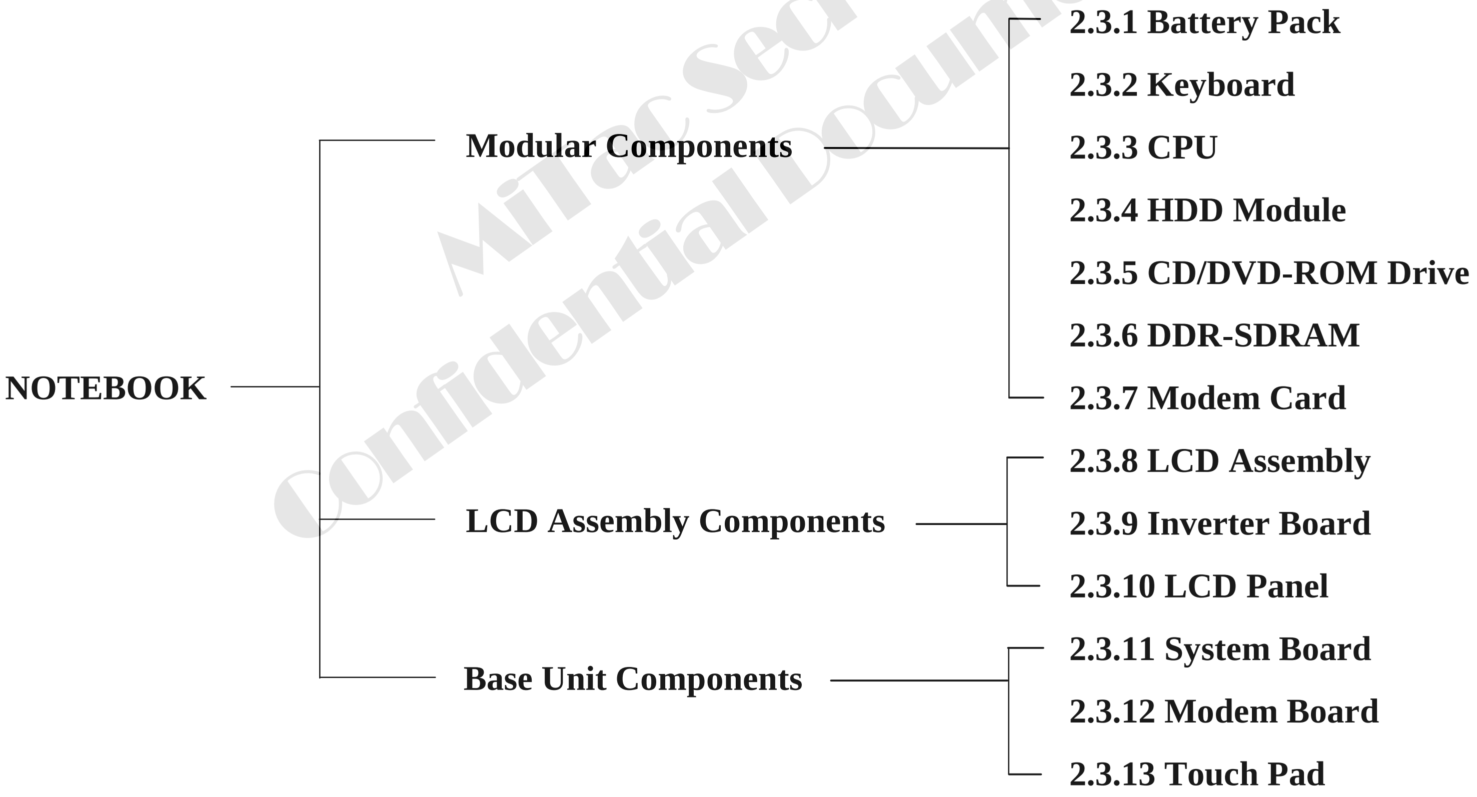
#0

Screw Size	Tooling	Tor.	Bit Size
1. M2.0	Auto-Screw driver	2.0-2.5 kg/cm2	#0

2.3 System Disassembly

The section discusses at length each major component for disassembly/reassembly and show corresponding illustrations.Use the chart below to determine the disassembly sequence for removing components from the notebook.

NOTE: *Before you start to install/replace these modules, disconnect all peripheral devices and make sure the notebook is not turned on or connected to AC power.*


NOTEBOOK
Modular Components
2.3.1 Battery Pack
2.3.2 Keyboard
2.3.3 CPU
2.3.4 HDD Module
2.3.5 CD/DVD-ROM Drive
2.3.6 DDR-SDRAM
2.3.7 Modem Card
LCD Assembly Components
2.3.8 LCD Assembly
2.3.9 Inverter Board
2.3.10 LCD Panel
Base Unit Components
2.3.11 System Board
2.3.12 Modem Board
2.3.13 Touch Pad

2.3.1 Battery Pack

Disassembly

1. Carefully put the notebook upside down.
2. Slide the two release levers outwards to the "unlock" position (❶), while take the battery pack out of the compartment (❷). (Figure 2-1)

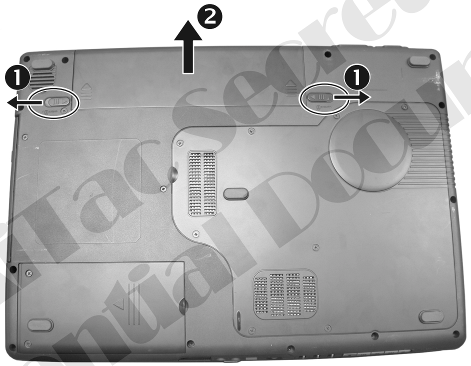


Figure 2-1 Remove the battery pack

Reassembly

1. Replace the battery pack into the compartment. The battery pack should be correctly connected when you hear a clicking sound.
2. Slide the release lever to the "lock" (🔒) position.

2.3.2 Keyboard

Disassembly

1. Remove the battery pack. (Refer to section 2.3.1 Disassembly)
2. Open the top cover.
3. Loosen the four latches locking the keyboard. (Figure 2-2)

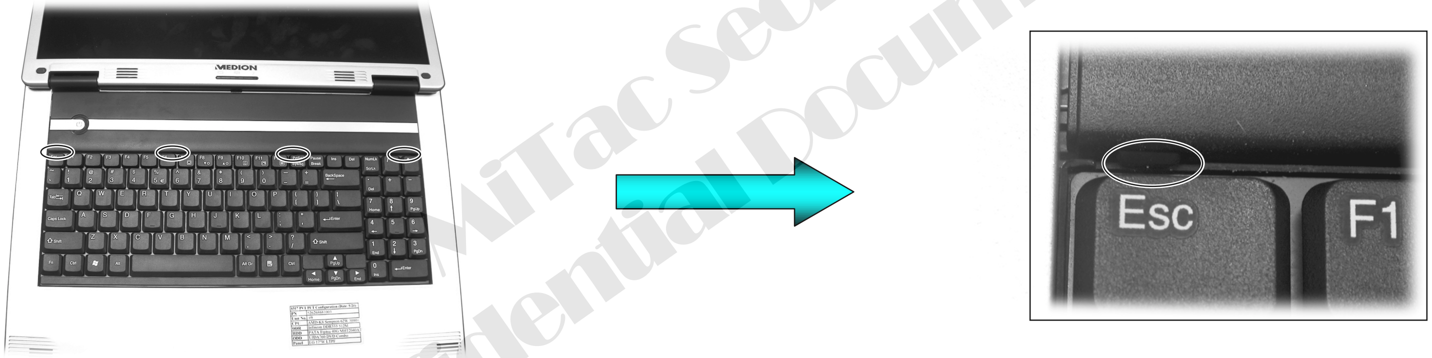


Figure 2-2 Loose the four latches

4. Slightly put the keyboard upside down and disconnect the cable from the system board, then separate the keyboard. (Figure 2-3)

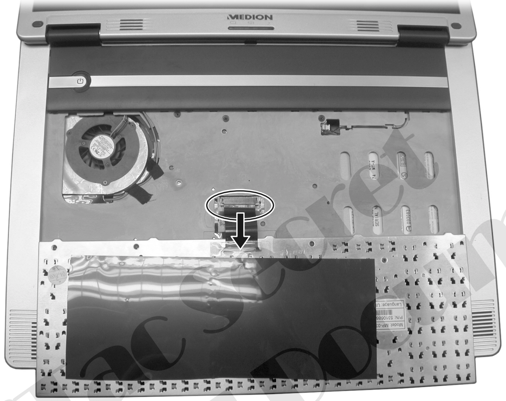


Figure 2-3 Free the keyboard

Reassembly

1. Reconnect the keyboard cable and fit the keyboard back into place.
2. Replace the keyboard fasten the four latches.
3. Replace the battery pack. (Refer to section 2.3.1 Reassembly)

2.3.3 CPU

Disassembly

1. Remove the battery pack. (Refer to section 2.3.1 Disassembly)
2. Remove the eight screws fastening the CPU cover. (Figure 2-4)
3. Remove the four spring screws that secure the heatsink upon the CPU and disconnect the fan's power cord from the system board. (Figure 2-5)

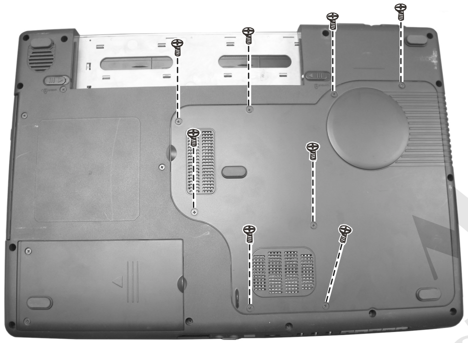


Figure 2-4 Remove the eight screws

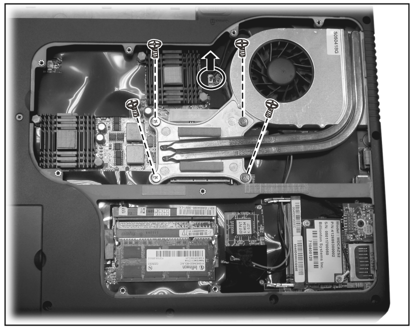


Figure 2-5 Free the heatsink

4. To remove the existing CPU, lift the socket arm up to the vertical position. (Figure 2-6)

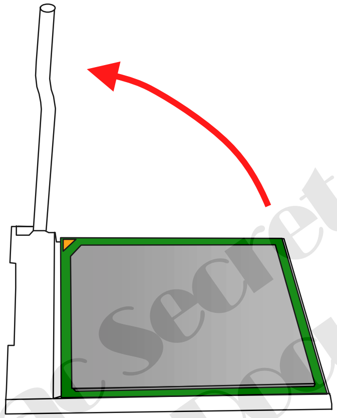


Figure 2-6 Free the CPU

Reassembly

1. Carefully, align the arrowhead corner of the CPU with the beveled corner of the socket, then insert CPU pins into the holes. Place the lever back to the horizontal position and push the lever to the left.
2. Reconnect the fan's power cord to the system board, fit the heatsink onto the top of the CPU and secure with four screws.
3. Replace the CPU cover and secure with eight screws.
4. Replace the battery pack. (See section 2.3.1 reassembly)

2.3.4 HDD Module

Disassembly

1. Carefully put the notebook upside down. Remove the battery pack. (Refer to section 2.3.1 Disassembly)
2. Remove the two screws fastening the HDD compartment cover. (Figure 2-7)
3. Remove the one screw and slide the HDD module out of the compartment. (Figure 2-8)

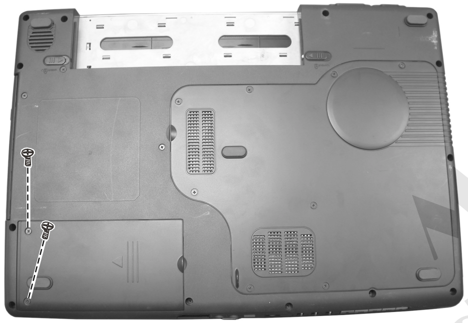


Figure 2-7 Remove the HDD compartment cover

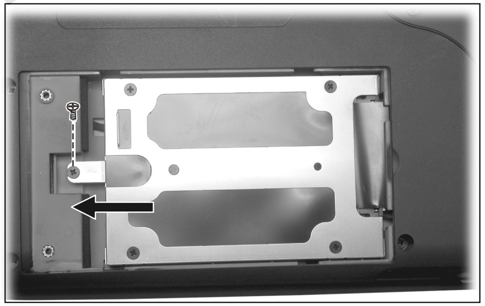


Figure 2-8 Remove HDD module

4. Remove the six screws to separate the hard disk drive from the bracket, remove the hard disk drive. (Figure 2-9)

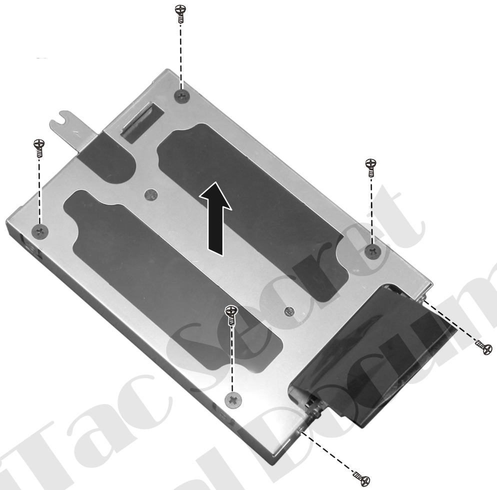


Figure 2-9 Remove hard disk drive

Reassembly

1. Attach the bracket to hard disk drive and secure with six screws.
2. Slide the HDD module into the compartment and secure with one screw.
3. Place the HDD compartment cover and secure with two screws.
4. Replace the battery pack. (Refer to section 2.3.1 Reassembly)

2.3.5 CD/DVD-ROM Drive

Disassembly

1. Carefully put the notebook upside down. Remove the battery pack. (See section 2.3.1 Disassembly)
2. Remove the two screws fastening the CD/DVD-ROM drive. (Figure 2-10)
3. Insert a small rod, such as a straightened paper clip, into CD/DVD-ROM drive’s manual eject hole (❶) and push firmly to release the tray. Then gently pull out the CD/DVD-ROM drive by holding the tray that pops out (❷).

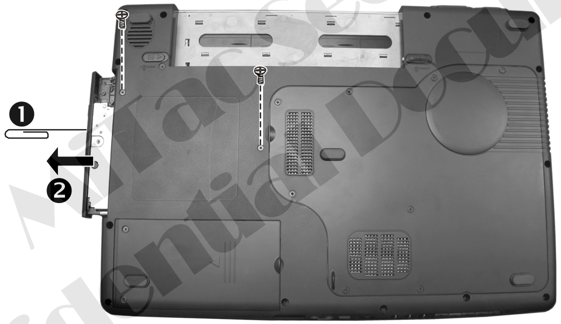


Figure 2-10 Remove the CD/DVD-ROM drive

Reassembly

1. Push the CD/DVD-ROM drive into the compartment and secure with two screws.
2. Replace the battery pack. (See section 2.3.1 Reassembly)

2.3.6 DDR-SDRAM

Disassembly

1. Carefully put the notebook upside down. Remove the battery pack. (See section 2.3.1 Disassembly)
2. Remove the eight screws fastening the CPU cover. (Refer to the step 2 of section 2.3.3 Disassembly)

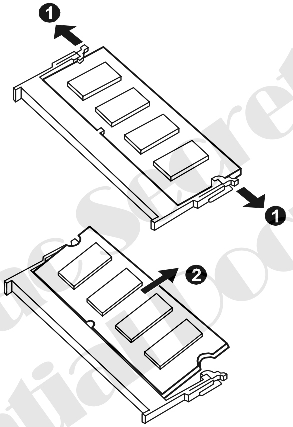


Figure 2-11 Remove the SO-DIMM

3. Pull the retaining clips outwards (❶) and remove the SO-DIMM (❷). (Figure 2-11)

Reassembly

1. To install the DDR, match the DDR's notched part with the socket's projected part and firmly insert the SO-DIMM into the socket at 20-degree angle. Then push down until the retaining clips lock the DDR into position.
2. Replace the CPU cover and secure with eight screws. (Refer to the step 3 of section 2.3.3 Reassembly)
3. Replace the battery pack. (See section 2.3.1 Reassembly)

2.3.7 Modem Card

Disassembly

1. Carefully put the notebook upside down. Remove the battery pack. (Refer to section 2.3.1 Disassembly)
2. Remove eight screws fastening CPU cover. (Refer to step 2 of section 2.3.3 Disassembly)
3. Remove two screws fastening the modem card. (Figure 2-12)
4. Lift up the modem card and disconnect the cord. (Figure 2-13)

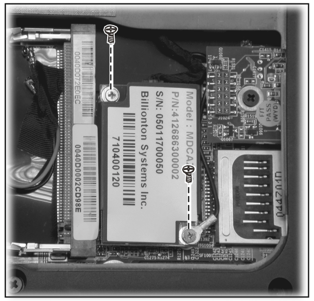


Figure 2-12 Remove two screws

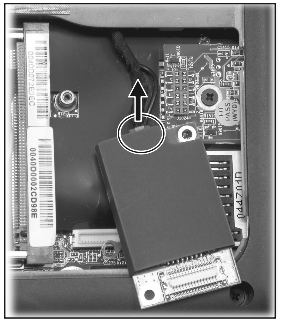


Figure 2-13 Disconnect the cord

Reassembly

1. Reconnect the cord and fit the modem card.
2. Fasten the modem card by two screws.
3. Replace the CPU cover by eight screws. (Refer to step 3 of section 2.3.3 Reassembly).
4. Replace the battery pack. (Refer to section 2.3.1 Reassembly)

2.3.8 LCD ASSY

Disassembly

1. Remove the battery pack and keyboard. (See sections 2.3.1 and 2.3.2 Disassembly)
2. Remove the CPU cover. (Refer to the step 2 of section 2.3.3 Disassembly)
3. Separate the antennae from the system board. (Figure 2-14)
4. Remove the KB cover from the top cover. And separate the antennae from the case kit. (Figure 2-15)

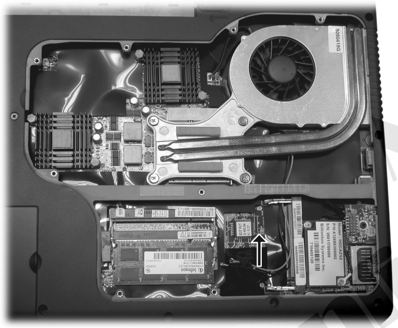


Figure 2-14 Separate the antennae

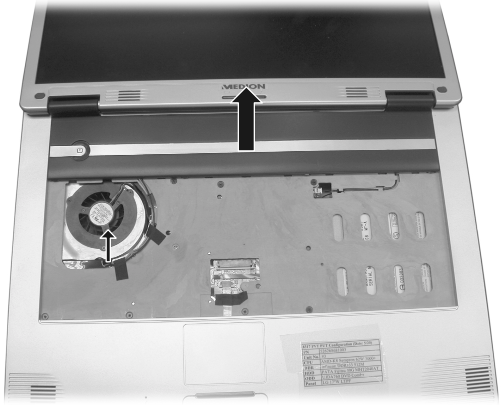


Figure 2-15 Remove the KB cover

5. Disconnect the three cables from the system board and separate the antennae. (Figure 2-16)
6. Remove the four screws and free the LCD assembly. (Figure 2-17)

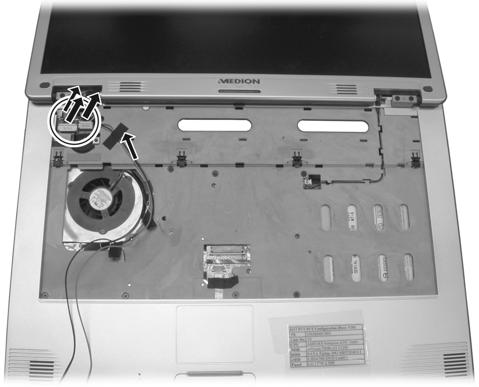


Figure 2-16 Disconnect the three cables and separate the antennae

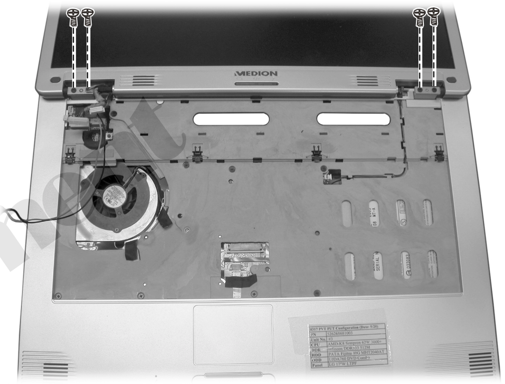


Figure 2-17 Free the LCD assembly

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Reassembly

1. Attach the LCD assembly to the base unit and secure with four screws.
2. Replace the antennae back into Mini PCI compartment.
3. Reconnect the three cables to the system board.
4. Replace the KB cover.
5. Replace the CPU cover. (Refer to the step 3 of section 2.3.3 Reassembly)
6. Replace the keyboard and battery pack. (Refer to section 2.3.2 and 2.3.1 Reassembly)

2.3.9 Inverter Board

Disassembly

1. Remove the battery, keyboard and LCD assembly. (Refer to section 2.3.1, 2.3.2 and 2.3.8 Disassembly)
2. Remove the six rubber pads and six screws on the corners of the panel. (Figure 2-18)
3. Insert a flat screwdriver to the lower part of the LCD cover and gently pry the frame out. Repeat the process until the cover is completely separated from the housing.
4. Remove the two screws and disconnect the cable. (Figure 2-19)

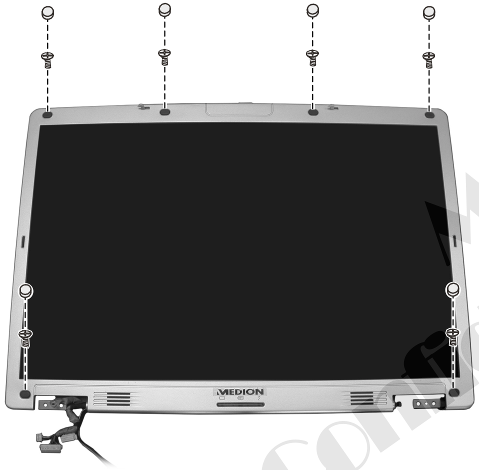


Figure 2-18 Remove LCD cover

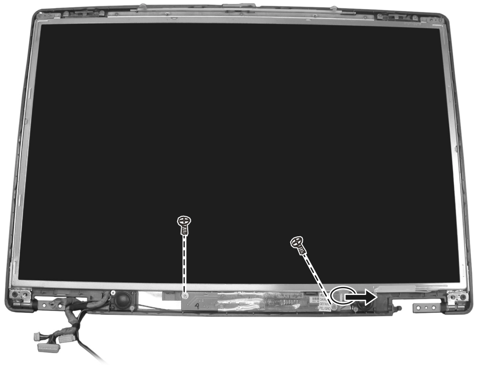


Figure 2-19 Remove the two screws and disconnect the cable

5. Disconnect the cable from the inverter board and free the inverter board. (Figure 2-20)

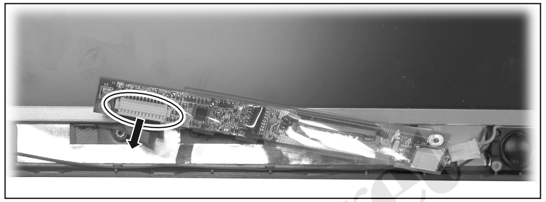


Figure 2-20 Free the inverter board

Reassembly

1. Reconnect the cable into the inverter board, then replace the inverter board into the LCD housing and secure with two screws.
2. Reconnect the cable into the inverter board.
3. Replace the LCD cover and secure with six screws and six rubber pads.
4. Replace the LCD assembly, keyboard and battery pack. (Refer to section 2.3.8, 2.3.2, 2.3.1 Reassembly)

2.3.10 LCD Panel

Disassembly

1. Remove the battery, keyboard, LCD assembly and inverter board. (Refer to section 2.3.1, 2.3.2, 2.3.8 and 2.3.9 Disassembly)
2. Remove the four screws. (Figure 2-21)
3. Remove the four screws that secure the LCD brackets. (Figure 2-22)

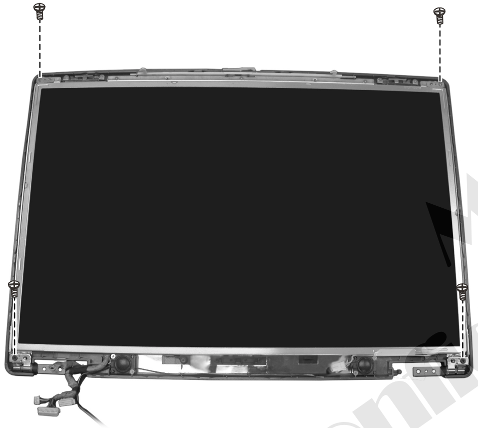


Figure 2-21 Remove the four screws

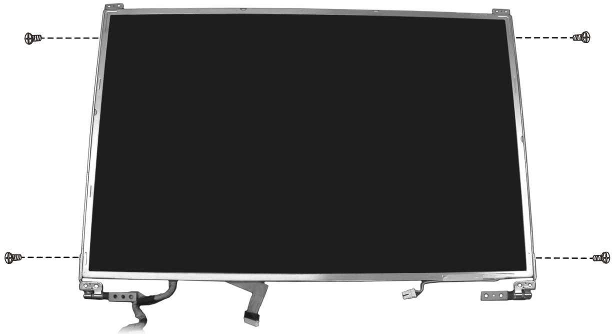


Figure 2-22 Remove the four screws

4. Disconnect the cable to free the LCD panel. (Figure 2-23)

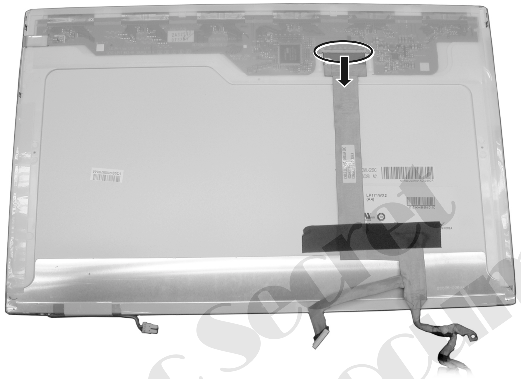


Figure 2-23 Free the LCD panel

Reassembly

1. Replace the cable to the LCD panel.
2. Attach the LCD panel's brackets back to LCD panel and secure with four screws.
3. Replace the LCD panel into LCD housing and secure with four screws.
4. Replace the inverter board, LCD assembly, keyboard and battery pack. (Refer to section 2.3.9, 2.3.8, 2.3.2 and 2.3.1 Reassembly)

2.3.11 System Board

Disassembly

1. Remove the battery, keyboard, CPU, hard disk drive, CD/DVD-ROM drive, DDR, modem card and LCD assembly. (Refer to sections 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.5, 2.3.6, 2.3.7 and 2.3.8 Disassembly)
2. Disconnect the touch pad's cable and the cover switch's cable from the system board, then remove the eight screws fastening the top cover. (Figure 2-24)
3. Disconnect the woofer speaker's cable from the system board, then remove the sixteen screws fastening the housing and free the housing. (Figure 2-25)

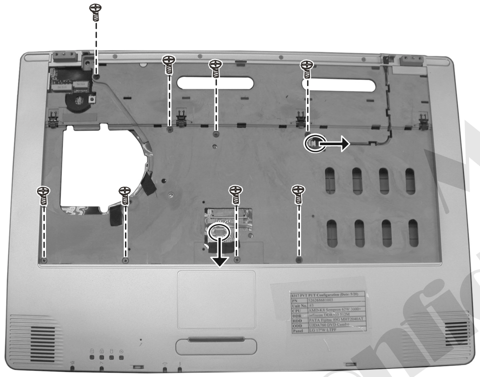


Figure 2-24 Disconnect the two cables and remove the eight screws

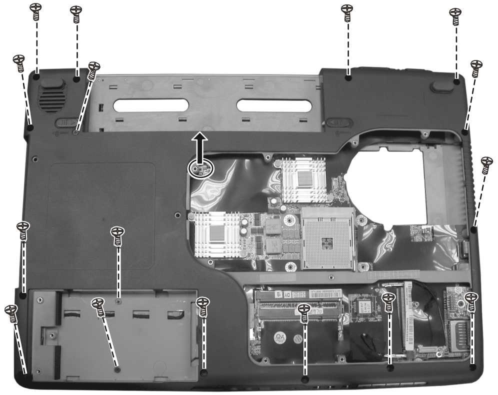


Figure 2-25 Free the housing

4. Disconnect the two speakers' cables from the system board. (Figure 2-26)
5. Remove the two screws and four hex nuts, then lift the system board from the top cover and free the system board. (Figure 2-27)

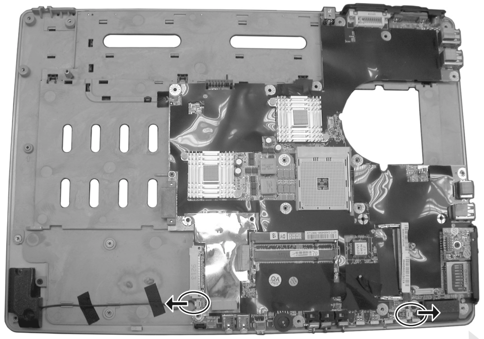


Figure 2-26 Disconnect the cables

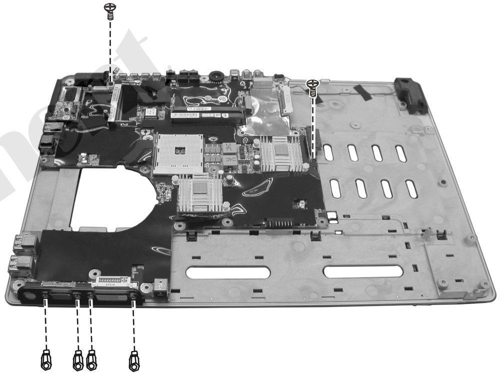


Figure 2-27 Free the system board

Reassembly

1. Fit the system board into the top cover and secure with two screws and four hex nuts.
2. Reconnect the two speakers' cables into the system board.
3. Replace the housing into the top cover and secure with sixteen screws, then reconnect the woofer speaker's cable.
4. Reconnect the touch pad's cable and the cover switch's cable, then secure with eight screws.
5. Replace the LCD assembly, modem card, DDR, CD/DVD-ROM drive, hard disk drive, CPU, keyboard and battery pack. (Refer to the section 2.3.8, 2.3.7, 2.3.6, 2.3.5, 2.3.4, 2.3.3, 2.3.2 and 2.3.1 Reassembly)

2.3.12 Modem Board

Disassembly

1. Remove the battery pack, keyboard, CPU, hard disk drive, CD/DVD-ROM drive, DDR, modem card and LCD assembly. (See sections 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.5, 2.3.6, 2.3.7 and 2.3.8 Disassembly)
2. Remove the housing. (Refer to the steps 1-3 of section 2.3.11 Disassembly)
3. Remove the one screw and lift the modem board, then free it. (Figure 2-28)

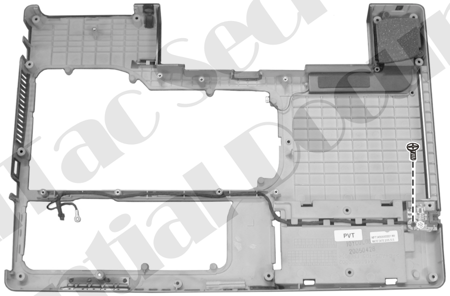


Figure 2-28 Free the modem board

Reassembly

1. Replace the modem board into the housing and secure with one screw.
2. Replace the housing. (Refer to the step 3-4 of section 2.3.11 Disassembly)
3. Replace the LCD assembly, modem card, DDR, CD/DVD-ROM drive, hard disk drive, CPU, keyboard and battery pack. (See sections 2.3.8, 2.3.7, 2.3.6, 2.3.5, 2.3.4, 2.3.3, 2.3.2 and 2.3.1 Reassembly)

2.3.13 Touch Pad

Disassembly

1. Remove the battery pack, keyboard, CPU, hard disk drive, CD/DVD-ROM drive, DDR, modem card, LCD assembly and system board. (See sections 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.5, 2.3.6, 2.3.7, 2.3.8 and 2.3.11 Disassembly)
2. Remove the four screws from the top cover. (Figure 2-29)
3. Disconnect the cable from the touch pad, then remove the two screws and free the shielding. (Figure 2-30)
4. Touch pad can't be taken apart from the top cover. It is necessary to replace the top cover, if defect.

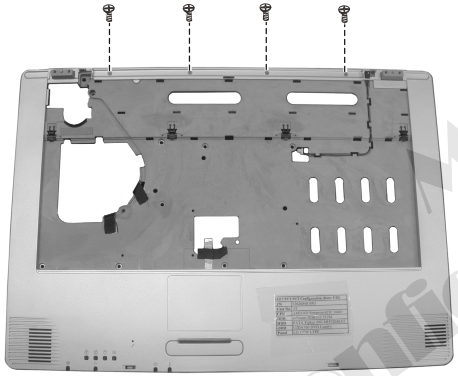


Figure 2-29 Remove four screws

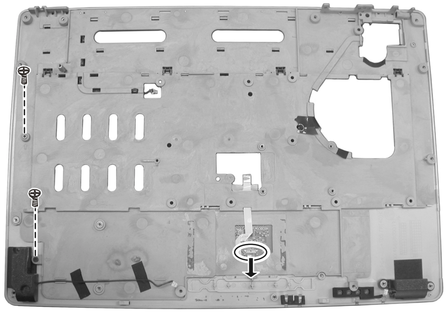


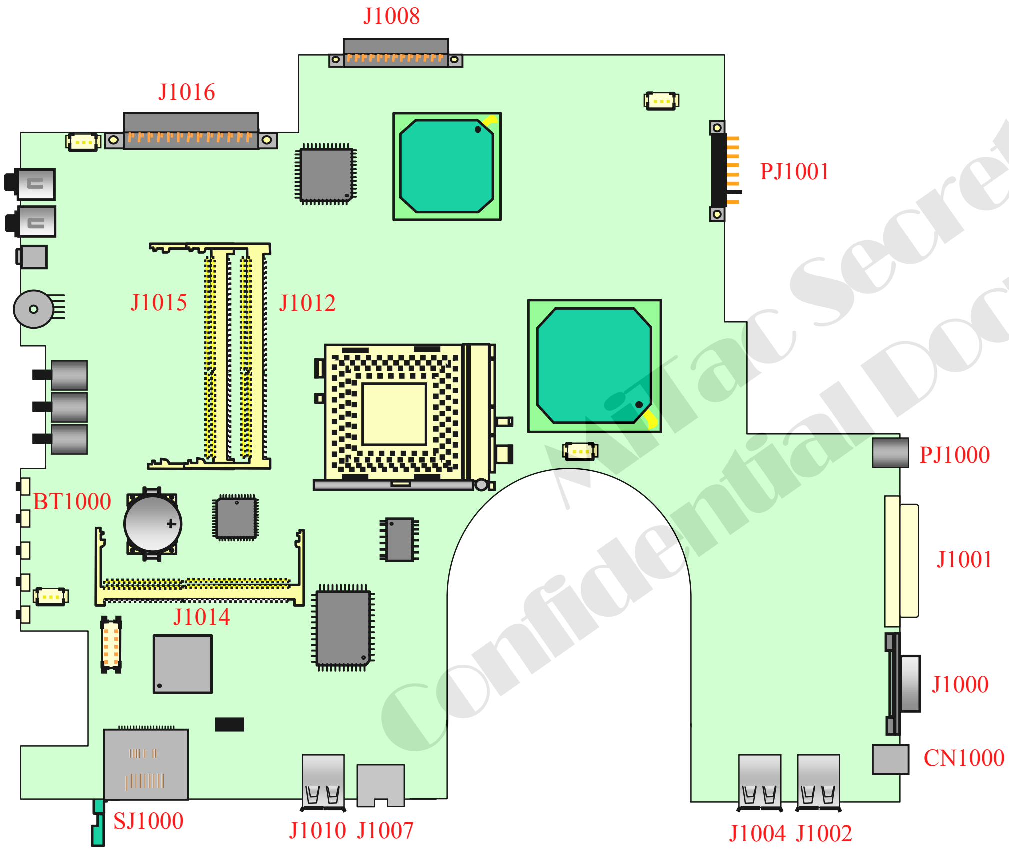
Figure 2-30 Free the shielding

Reassembly

1. Reconnect the cable into the touch pad.
2. Fit the shielding and secure with six screws.
3. Replace the system board, LCD assembly, modem card, DDR, CD/DVD-ROM drive, hard disk drive, CPU, keyboard and battery pack. (See the previous sections reassembly)

3. Definition & Location of Connectors / Switches

3.1 Mother Board-A(1)


J1008
J1016
PJ1001
J1015
J1012
PJ1000
BT1000
J1001
J1014
J1000
CN1000
SJ1000
J1010
J1007
J1004
J1002

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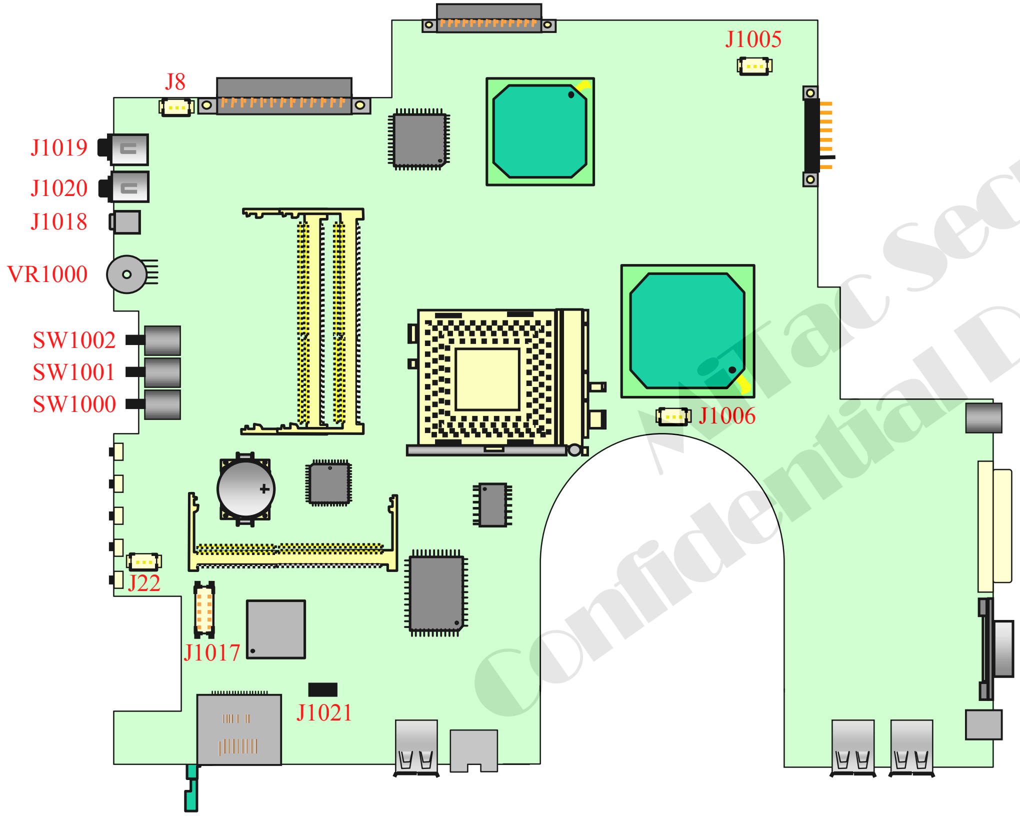
- **PJ1000 : Power Jack**
- **PJ1001 : Battery Connector**
- **J1000 : External VGA Connector**
- **J1001 : DVI Port**
- **J1002, J1004, J1010 : USB Port**
- **J1007 : RJ45 Connector**
- **J1008 : Secondary IDE Connector**
- **J1012, J1015 : Extend DDR SDRAM Connector**
- **J1014 : MINI-PCI Connector**
- **J1016 : Serial-ATA and Para-ATA Connector**
- **SJ1000 : Card Reader Socket**
- **BT1000 : CMOS Battery**
- **CN1000 : TV-Out Connector**

------ To next page ------

3. Definition & Location of Connectors / Switches

3.1 Mother Board-A(2)


J8
J1005
J1019
J1020
J1018
VR1000
SW1002
SW1001
SW1000
J1006
J22
J1017
J1021

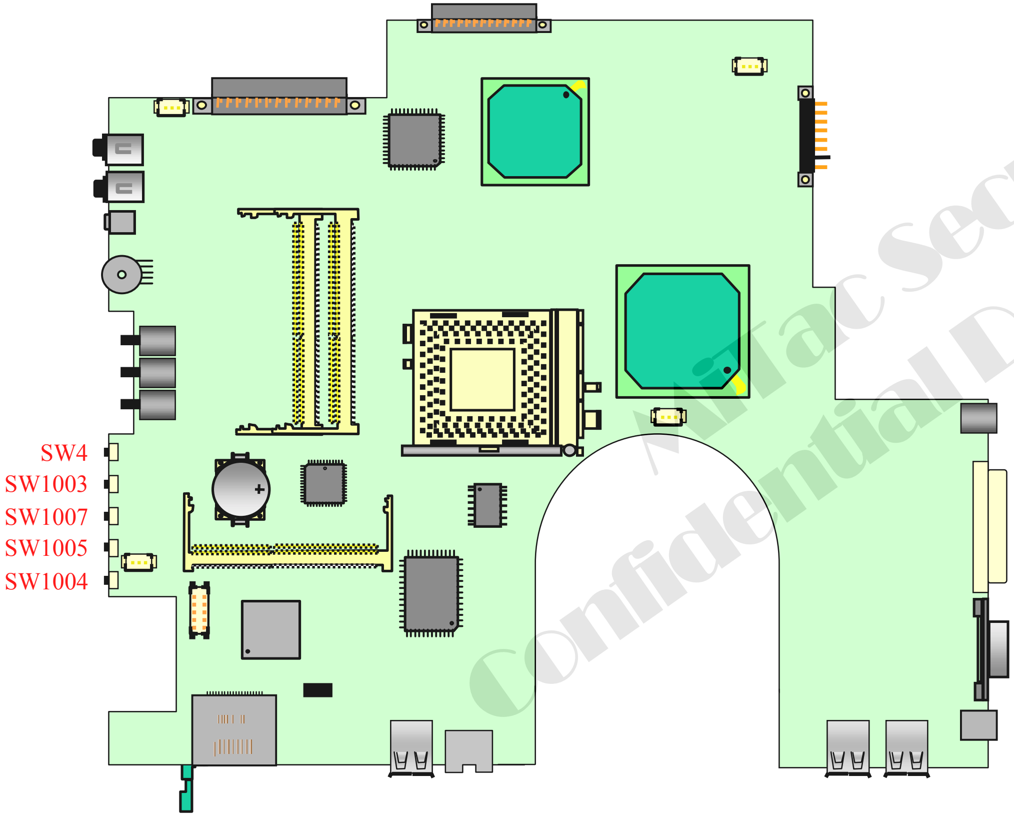
------ Continued to previous page ------

- **J8 : Full Range Right Speak Connector**
- **J22 : Full Range Left Speak Connector**
- **J1005 : Internal Subwoofer Connector**
- **J1006 : CPU Fan Connector**
- **J1017 : MDC Jump Wire Connector**
- **J1018 : IEEE 1394 Connector**
- **J1019 : Internal MIC In Connector**
- **J1020 : Line Out Connector**
- **J1021 : Daughter Board Connector**
- **VR1000 : Volume Controller**
- **SW1002 : Bluetooth On/Off Button(Function SW)**
- **SW1001 : WLAN On/Off Button(Function SW)**
- **SW1000 : Lock Button(Function SW)**

8317 N/B Maintenance

3. Definition & Location of Connectors / Switches

3.1 Mother Board-A(3)



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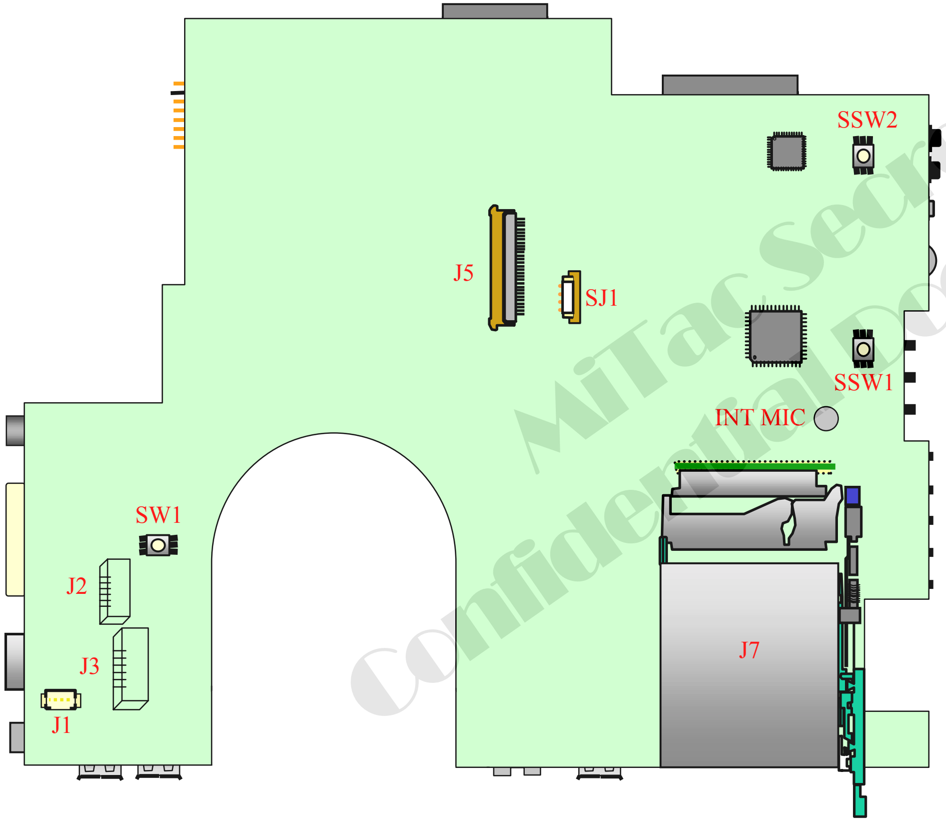
- **SW4 : Stop Button(Instant Play SW)**
- **SW1003 : Forward Button(Instant Play SW)**
- **SW1004 : Mute Button(Instant Play SW)**
- **SW1005 : Backward Button(Instant Play SW)**
- **SW1007 : Play Button(Instant Play SW)**

3. Definition & Location of Connectors / Switches

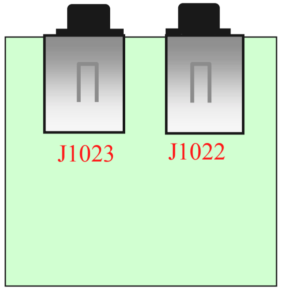
3.1 Mother Board-B



- **J1 : Internal Tweeter Speaker Connector**
- **J2 : Inverter Board Connector**
- **J3 : LCD Connector**
- **J5 : Internal Keyboard Connector**
- **J7 : PCMCIA Card Socket**
- **SJ1 : Touch-Pad Connector**
- **SW1 : Power On/Off Button**
- **SSW1 : Touch-Pad Left Button**
- **SSW2 : Touch-Pad Right Button**

3. Definition & Location of Connectors / Switches

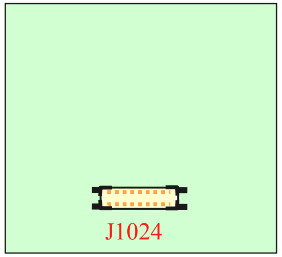
3.2 Audio Jack Board-A



- **J1022 : SPDIF Connector**
- **J1023 : Line In Connector**

3. Definition & Location of Connectors / Switches

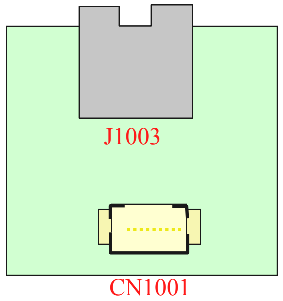
3.2 Audio Jack Board-B



- **J1024 : Daughter Board Connector**

3. Definition & Location of Connectors / Switches

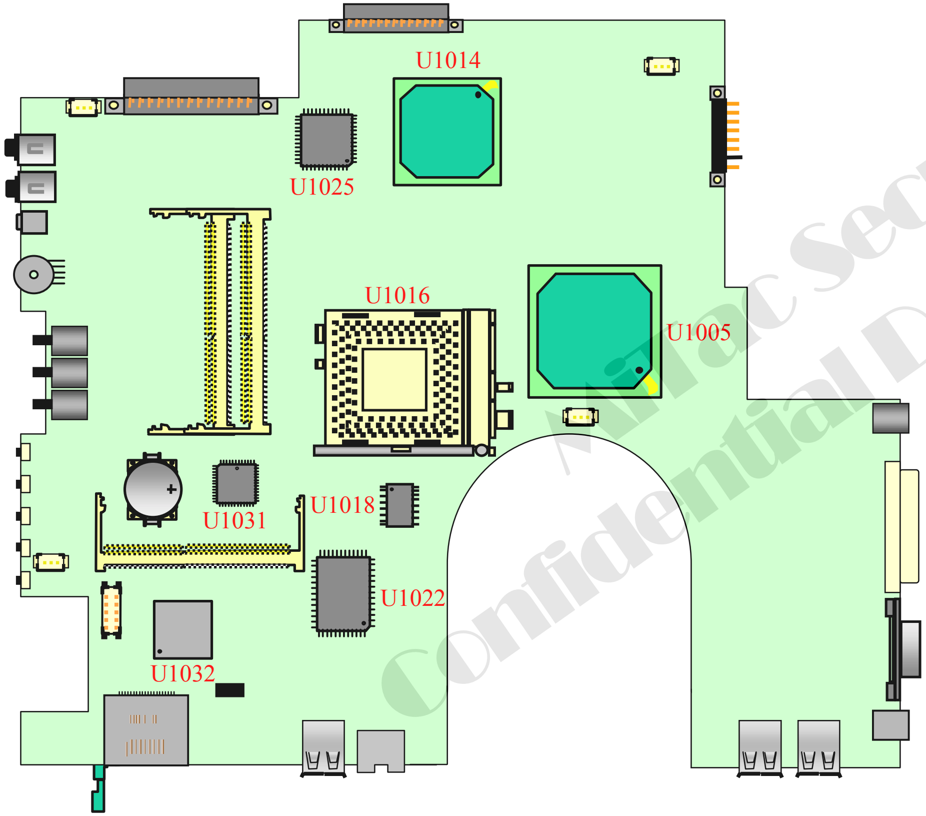
3.3 Modem Board-A



- **J1003 : RJ11 Connector**
- **CN1001 : MDC Board Connector**

4. Definition & Location of Major Components

4.1 Mother Board-A


U1014
U1025
U1016
U1005
U1018
U1031
U1022
U1032

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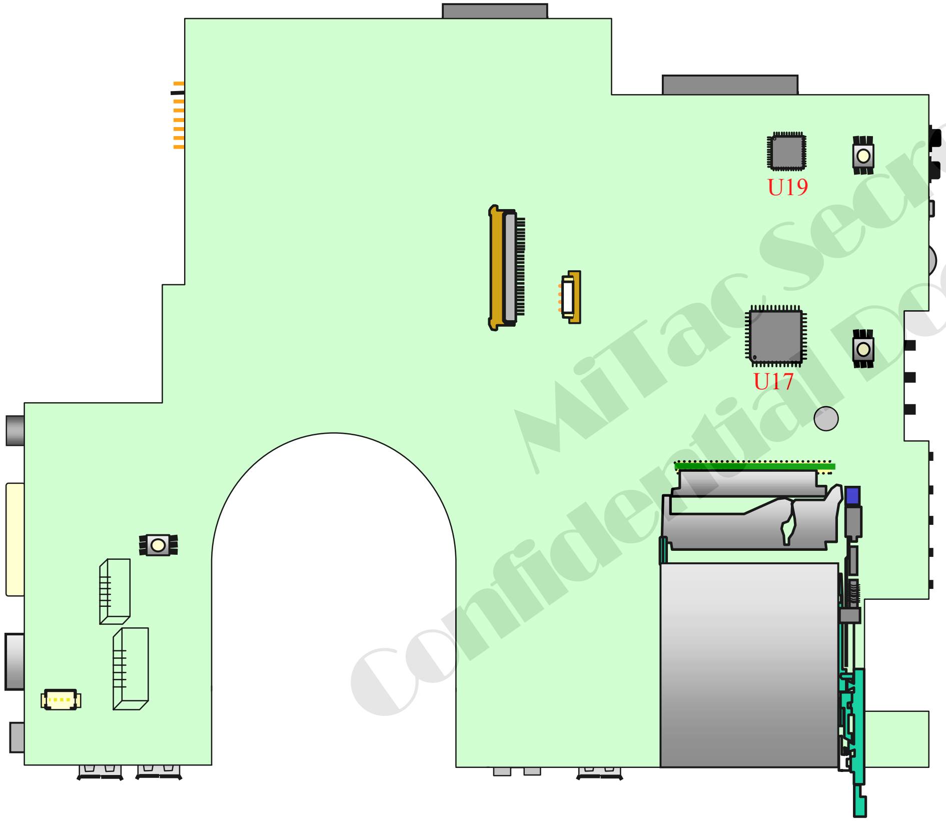
- **U1005 : North Bridge(ATI RS480M)**
- **U1014 : South Bridge(ULI M1573)**
- **U1016 : CPU (AMD Mobile K8) Socket**
- **U1018 : ICS951412 Clock Generator**
- **U1022 : RTL8110SBL LAN Controller**
- **U1025 : Keyboard BIOS(H8S/2140)**
- **U1031 : System BIOS**
- **U1032 : CardBus PCI7411**

4. Definition & Location of Major Components

4.1 Mother Board-B



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- **U17 : Super IO W83L517D**
- **U19 : Audio Codec ALC880**

5. Pin Descriptions of Major Components

5.1 AMD Mobile K8 BGA754_SKT Pin(1)

Miscellaneous Pin Descriptions

Signal Name	Type	Description
RESET_L	I-IOS	System Reset
PWROK	I-IOS	Indicates that voltages and clocks have reached specified operation
LDTSTOP_L	I-IOS	HyperTransport™ Technology Stop Control Input. Used for power management and for changing HyperTransport link width and frequency.
VID[4:0]	O-IOS	Voltage ID to the regulator
THERMDA	A	Anode (+) of the thermal diode
THERMDC	A	Cathode (–) of the thermal diode
THERMTRIP_L	O-IO-OD	Thermal Sensor Trip output, asserted at nominal temperature of 125 ℃.
COREFB_H/L	A	Differential feedback for VDD Power Supply
VDDIOFB_H/L	A	Differential feedback for VDDIO Power Supply
CORE_SENSE	A	VDD voltage monitor pin
VDDA	S	Filtered PLL Supply Voltage
VTT_SENSE	A	VTT voltage monitor pin
VDDIO_SENSE	A	VDDIO voltage monitor pin
VDD	S	Core power supply
VDDIO	S	DDR SDRAM I/O ring power supply
VLDT_A VLDT_B	S	HyperTransport™ I/O ring power supply for side A and side B of the package
VTT_A VTT_B	S	VTT regulator voltage for side A and side B of the die
VSS	S	Ground

Debug Pin Descriptions

Signal Name	Type	Description
DBREQ_L	I-IOS	Debug Request
DBRDY	O-IOS	Debug Ready

JTAG Pin Descriptions

Signal Name	Type	Description
TCK	I-IOS	JTAG Clock
TMS	I-IOS	JTAG Mode Select
TRST_L	I-IOS	JTAG Reset
TDI	I-IOS	JTAG Data Input
TDO	O-IOS	JTAG Data Output

Clock Pin Descriptions

Signal Name	Type	Description
CLKIN_H/L	I-IOD	200-MHz PLL Reference Clock
FBCLKOUT_H/L	O-IOD	Core Clock PLL 200-MHz Feedback Clock

5.1 AMD Mobile K8 BGA754_SKT Pin(2)

DDR SDRAM Memory Interface Pins

Signal Name	Type	Description
MEMCLK_H/L[7]	O-IOD	Differential DDR SDRAM clock to the top of DIMM 0 for unbuffered DIMMs.1
MEMCLK_H/L[6]	O-IOD	Differential DDR SDRAM clock to the top of DIMM 1 for unbuffered DIMMs.1
MEMCLK_H/L[5]	O-IOD	Differential DDR SDRAM clock to the bottom of DIMM 0 for unbuffered DIMMs.1
MEMCLK_H/L[4]	O-IOD	Differential DDR SDRAM clock to the bottom of DIMM 1 for unbuffered DIMMs.1
MEMCLK_H/L[3]	O-IOD	Differential DDR SDRAM clock to DIMM 3 for registered DIMMs.1
MEMCLK_H/L[2]	O-IOD	Differential DDRS DRAM clock to DIMM 2 for registered DIMMs.1
MEMCLK_H/L[1]	O-IOD	Differential DDR SDRAM clock to the middle of DIMM 1 for unbuffered DIMMs, or DIMM 1 for registered DIMMs.1
MEMCLK_H/L[0]	O-IOD	Differential DDR SDRAM clock to the middle of DIMM 0 for unbuffered DIMMs, or DIMM 0 for registered DIMMs.1
MEMCKEA MEMCKEB	O-IOS	Clock Enables to DIMMs. Used to gate clocks for power management functionality.1
MEMDQS[17:0]	B-IOS	DRAM Data Strobes synchronous with MEMDATA and MEMCHECK during DRAM read and writes.1
MEMDATA[63:0]	B-IOS	DRAM Interface Data Bus
MEMCHECK[7:0]	B-IOS	DRAM Interface ECC Check Bits
MEMCS_L[7:0]	O-IOS	DRAM Chip Selects 1
MEMRASA_L MEMRASB_L	O-IOS	DRAM Row Address Select. MEMRASA_L and MEMRASB_L are functionally identical. Two copies are provided to accommodate the loading of unbuffered DIMMs.1
MEMCASA_L MEMCASB_L	O-IOS	DRAM Column Address Select. MEMCASA_L and MEMCASB_L are functionally identical. Two copies are provided to accommodate the loading of unbuffered DIMMs.1
MEMWEA_L MEMWEB_L	O-IOS	DRAM Write Enable. MEMWEA_L and MEMWEB_L are functionally identical. Two copies are provided to accommodate the loading of unbuffered DIMMs.1
MEMADDA[13:0] MEMADDB[13:0]	O-IOS	DRAM Column/Row Address. Two copies are provided to accommodate the loading of unbuffered DIMMs. During precharges, activates, reads, and writes, the two copies are inverted from each other (except A[10] which is used for auto-precharge) to minimize switching noise. The signals are inverted only when the bus is used to carry address information.1

DDR SDRAM Memory Interface Pins (Continued)

Signal Name	Type	Description
MEMBANKA[1:0] MEMBANKB[1:0]	O-IOS	DRAM Bank Address. Two copies are provided to accommodate the loading of unbuffered DIMMs. During precharges, activates, reads, and writes the two copies are inverted from each other to minimize switching noise. The signals are inverted only when the bus is used to carry address information.1
MEMRESET_L	O-IOS	DRAM Reset pin for Suspend-to-RAM power management mode. This pin is required for registered DIMMs only.
MEMVREF	VREF	DRAM Interface Voltage Reference 1
MEMZP	A	Compensation Resistor tied to VSS 1
MEMZN	A	Compensation Resistor tied to 2.5 V 1

Notes:

1. *For connection details and proper resistor values, see the* AMD Athlon™ 64 Processor Motherboard Design Guide*, order# 24665.*

HyperTransport™ Technology Pin Descriptions

Signal Name	Type	Description
L0_CLKIN_H/L[1:0]	I-HT	Link 0 Clock Input
L0_CTLIN_H/L[1:0]	I-HT	Link 0 Control Input 2
L0_CADIN_H/L[15:0]	I-HT	Link 0 Command/Address/Data Input
L0_CLKOUT_H/L[1:0]	O-HT	Link 0 Clock Outputs
L0_CTLOUT_H/L[1:0]	O-HT	Link 0 Control Output
L0_CADOUT_H/L[15:0]	O-HT	Link 0 Command/Address/Data Outputs
L0_REF1	A	Compensation Resistor to VLDT 1
L0_REF0	A	Compensation Resistor to VSS 1

Notes:

1. *These pins are used in an alternating fashion to compensate R TT by internal comparison to 3/4 VLDT and 1/4 VLDTand compensate R ON by comparison to each other around 1/2 VLDT. For proper resistor value, see the*AMD Athlon™ 64 Processor Motherboard Design Guide*, order# 24665.*
2. *The unused L0_CTLIN_H/L[1] pins must be properly terminated such that the true pin is pulled High and thecomplement is pulled Low. Refer to the* AMD Athlon™ 64 Processor Motherboard Design Guide*, order# 24665, for details.*

5.2 ATI RS480M North Bridge(1)

CPU Interface

Pin Name	Type	Power Domain	Ground Domain	Functional Description
HT_RXCAD[15:0]P, HT_RXCAD[15:0]N	I	VDDHT	VSS	Receiver Command, Address, and Data Differential Pairs
HT_RXCLK[1:0]P, HT_RXCLK[1:0]N	I	VDDHT	VSS	Receiver Clock Signal Differential Pair. Forwarded clock signal. Each byte of RXCAD uses a different clock signal. Data is transferred on each clock edge.
HT_RXCTLP, HT_RXCTLN	I	VDDHT	VSS	Receiver Control Differential Pair. For distinguishing control packets from data packets.
HT_TXCAD[15:0]P, HT_TXCAD[15:0]N	O	VDDHT	VSS	Transmitter Command, Address, and Data Differential Pairs
HT_TXCLK[1:0]P, HT_TXCLK[1:0]N	O	VDDHT	VSS	Transmitter Clock Signal Differential Pair. Each byte of TXCAD uses a different clock signal. Data is transferred on each clock edge.
HT_TXCTLP, HT_TXCTLN	O	VDDHT	VSS	Transmitter Control Differential Pair. Forwarded clock signal. For distinguishing control packets from data packets.
HT_RXCALN	Other	VDDHT	VSS	Receiver Calibration Resistor to VDD_HT power rail.
HT_RXCALP	Other	VDDHT	VSS	Receiver Calibration Resistor to Ground
HT_TXCALP	Other	VDDHT	VSS	Transmitter Calibration Resistor to HTTX_CALN
HT_TXCALN	Other	VDDHT	VSS	Transmitter Calibration Resistor to HTTX_CALP
HTREFCLK	I	HTPVDD	HTPVSS	HyperTransport 66 MHz reference clock from external clock source
HTTSTCLK	I	HTPVDD	HTPVSS	HyperTransport Bus Test Clock. Drives test clock in test mode. Connect to ground in functional mode.

GDDR Side-Port Memory Interface

Pin Name	Type	Power Domain	Ground Domain	Integrated Termination	Functional Description
MEM_A[14:0]	O	VDD_MEM	VSS	None	Memory Address Bus. Provides the multiplexed row and column addresses to the memories.
MEM_RAS#	O	VDD_MEM	VSS	None	Row Address Strobe
MEM_CAS#	O	VDD_MEM	VSS	None	Column Address Strobe
MEM_WE#	O	VDD_MEM	VSS	None	Write Enable Strobe
MEM_CKE	O	VDD_MEM	VSS	None	Clock Enable
MEM_CKP	O	VDD_MEM	VSS	None	Memory Differential Positive Clock
MEM_CKN	O	VDD_MEM	VSS	None	Memory Differential Negative Clock
MEM_CS#	O	VDD_MEM	VSS	None	Chip Select
MEM_DQ[63:0]	I/O	VDD_MEM	VSS	None	Memory Data Bus. Supports SSTL2 and SSTL3.
MEM_DM[7:0]	I/O	VDD_MEM	VSS	None	Data masks for each byte during memory write cycles
MEM_DQS[7:0]P	I/O	VDD_MEM	VSS	None	GDDR Data Strobes. These are bi-directional data strobes for latching read/write data.
MEM_DQS[7:0]N	I/O	VDD_MEM	VSS	None	Do not connect.
MEM_VMODE	I	–	VSS	None	Selects Memory I/O type. This pin must be tied to the appropriate level depending on the memories connected to the interface. For VDD_MEM=2.5V, connect MEM_VMODE 0V. For VDD_MEM=1.8V, connect MEM_VMODE to 1.8V. **NOTES:** (1) All DRAM connected must be of the SAME interface type; (2) In Sleep mode, when the memory power is on and when MEM_VMODE selects VDD_MEM=1.8V, MEM_VMODE pad MUST ALSO have 1.8V applied to it.

5.2 ATI RS480M North Bridge(2)

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4 x 1 Lane PCI Express Interface for General Purpose External Devices

Pin Name	Type	Power Domain	Ground Domain	Integrated Termination	Functional Description
GPP_TX0P/SB_TX2P, GPP_TX0N/SB_TX2N	O	VDDA_18	VSSA	50Ω between complements	Transmit Data Differential Pair for general purpose external devices or A-Link Express interface expansion. Connect to an external connector on the motherboard for New Card support or to the IXP for A-Link Expression expansion.
GPP_TX1P/SB_TX3P, GPP_TX1N/SB_TX3N	O	VDDA_18	VSSA	50Ω between complements	Transmit Data Differential Pair for general purpose external devices or A-Link Express interface expansion. Connect to an external connector on the motherboard for New Card support or to the IXP for A-Link Expression expansion.
GPP_TX2P, GPP_TX2N	O	VDDA_18	VSSA	50Ω between complements	Transmit Data Differential Pair. Connect to an external connector on the motherboard for New Card support.
GPP_TX3P, GPP_TX3N	O	VDDA_18	VSSA	50Ω between complements	Transmit Data Differential Pair. Connect to an external connector on the motherboard for New Card support.
GPP_RX0P/SB_RX2P, GPP_RX0N/SB_RX2N	I	VDDA_18	VSSA	50Ω between complements	Receive Data Differential Pair for general purpose external devices or A-Link Express interface expansion. Connect to an external connector on the motherboard for New Card support or to the IXP for A-Link Expression expansion.
GPP_RX1P/SB_RX3P, GPP_RX1N/SB_RX3N	I	VDDA_18	VSSA	50Ω between complements	Receive Data Differential Pair for general purpose external devices or A-Link Express interface expansion. Connect to an external connector on the motherboard for New Card support or to the IXP for A-Link Expression expansion.
GPP_RX2P, GPP_RX2N	I	VDDA_18	VSSA	50Ω between complements	Receive Data Differential Pair. Connect to an external connector on the motherboard for New Card support.
GPP_RX3P, GPP_RX3N	I	VDDA_18	VSSA	50Ω between complements	Receive Data Differential Pair. Connect to an external connector on the motherboard for New Card support.

Clock Interface

Pin Name	Type	Power Domain	Ground Domain	Integrated Termination	Functional Description
HTREFCLK	I	HTPVDD	HTPVSS	–	HyperTransport 66 MHz reference clock from external clock source
	I	HTPVDD	HTPVSS	–	HyperTransport Bus Test Clock. Drives test clock in test mode Connect to ground in functional mode.
TVCLKIN	I	VDDR3	VSS	–	Input pin for reference clock for TV-out support (3.3 volt signaling)
OSCOUT		VDDR3	VSS	Disabled	Buffered output of 14MHz reference clock to the IXP (3.3 volt signaling)
OSCIN	I	VDDR3	VSS	Disabled	14MHz Reference clock input from the External Clock chip (3.3 volt signaling)

CRT and TV Interface

Pin Name	Type	Power Domain	Ground Domain	Integrated Termination	Functional Description
RED	A-O	AVDD	AVSSN	–	Red for CRT monitor output
GREEN	A-O	AVDD	AVSSN	–	Green for CRT monitor output
BLUE	A-O	AVDD	AVSSN	–	Blue for CRT monitor output
Y	A-O	AVDD	AVSSN	–	SVID luminance output for TV out
C	A-O	AVDD	AVSSN	–	SVID chrominance output for TV out
COMP	A-O	AVDD	AVSSN	–	Composite video TV output
DACHSYNC	A-O	VDDR3	VSS	50kΩ programmable: PU/PD/none	Display Horizontal Sync
DACVSYNC	A-O	VDDR3	VSS	50kΩ programmable: PU/PD/none	Display Vertical Sync
RSET	Other	N/A	AVSSQ	–	DAC internal reference to set full scale DAC current through 1% resistor to AVSS
DACSCL	I/O	VDDR3	VSS	50kΩ programmable: PU/PD/none	I2C clock for VGA interface (to video monitor)
DACSDA	I/O	VDDR3	VSS	50kΩ programmable: PU/PD/none	I2C data for VGA interface (to video monitor)

5.2 ATI RS480M North Bridge(3)

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LVDS Interface

Pin Name	Type	Power Domain	Ground Domain	Integrated Termination	Functional Description
TXOUT_U0N	O	LVDDR18A	LVSSR	None	LVDS upper data channel 0 (-) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. Only used in dual-channel LVDS mode
TXOUT_U0P	O	LVDDR18A	LVSSR	None	LVDS upper data channel 0 (+) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. Only used in dual-channel LVDS mode.
TXOUT_U1N	O	LVDDR18A	LVSSR	None	LVDS upper data channel 1 (-) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. Only used in dual-channel LVDS mode.
TXOUT_U1P	O	LVDDR18A	LVSSR	None	LVDS upper data channel 1 (+) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. Only used in dual-channel LVDS mode.
TXOUT_U2N	O	LVDDR18A	LVSSR	None	LVDS upper data channel 2 (-) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. Only used in dual-channel LVDS mode.
TXOUT_U2P	O	LVDDR18A	LVSSR	None	LVDS upper data channel 2 (+) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. Only used in dual-channel LVDS mode.
TXOUT_U3N	O	LVDDR18A	LVSSR	None	LVDS upper data channel 3 (-) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. Only used in dual-channel LVDS mode.
TXOUT_U3P	O	LVDDR18A	LVSSR	None	LVDS upper data channel 3 (+) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. Only used in dual-channel LVDS mode.
TXCLK_UN	O	LVDDR18A	LVSSR	None	LVDS upper clock channel (-) Transmitting at pixel clock rate, up to 85MHz pixel clock. Only used in dual-channel LVDS mode.
TXCLK_UP	O	LVDDR18A	LVSSR	None	LVDS upper clock channel (+) Transmitting at pixel clock rate, up to 85MHz pixel clock. Only used in dual-channel LVDS mode.

LVDS Interface (Continued)

Pin Name	Type	Power Domain	Ground Domain	Integrated Termination	Functional Description
TXOUT_L0N	O	LVDDR18A	LVSSR	None	LVDS lower data channel 0 (-) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. This channel is used as the transmitting channel in single channel LVDS mode.
TXOUT_L0P	O	LVDDR18A	LVSSR	None	LVDS lower data channel 0 (+) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. This channel is used as the transmitting channel in single channel LVDS mode.
TXOUT_L1N	O	LVDDR18A	LVSSR	None	LVDS lower data channel 1 (-) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. This channel is used as the transmitting channel in single channel LVDS mode.
TXOUT_L1P	O	LVDDR18A	LVSSR	None	LVDS lower data channel 1 (+) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. This channel is used as the transmitting channel in single channel LVDS mode.
TXOUT_L2N	O	LVDDR18A	LVSSR	None	LVDS lower data channel 2 (-) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. This channel is used as the transmitting channel in single channel LVDS mode.
TXOUT_L2P	O	LVDDR18A	LVSSR	None	LVDS lower data channel 2 (+) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. This channel is used as the transmitting channel in single channel LVDS mode.
TXOUT_L3N	O	LVDDR18A	LVSSR	None	LVDS lower data channel 3 (-) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. This channel is used as the transmitting channel in single channel LVDS mode.
TXOUT_L3P	O	LVDDR18A	LVSSR	None	LVDS lower data channel 3 (+) Transmitting at a bit rate of 7x pixel clock, up to 85MHz pixel clock. This channel is used as the transmitting channel in single channel LVDS mode.

5.2 ATI RS480M North Bridge(4)

LVDS Interface (Continued)

Pin Name	Type	Power Domain	Ground Domain	Integrated Termination	Functional Description
TXCLK_LN	O	LVDDR18A	LVSSR	None	LVDS lower clock channel (-) Transmitting at pixel clock rate, up to 85MHz pixel clock. This channel is used as the transmitting channel in single channel LVDS mode.
LPVSS	Gnd	–	–	–	LVDS PLL macro ground pin.
LVDDR18D	Pwr	–	–	–	1.8V LVDS Digital Power, used for the digital portions of the LVDS transmitter.
LVSSR	Gnd	–	–	–	LVDS IO ground pin.
LVDS_BLON	I/O	VDDR3	VSS	50kΩ programmable: PU/PD/none	Digital panel backlight brightness control. Active high. It controls backlight on/off or acts as PWM output to adjust brightness. If LVDS_GEN_CNTL.LVDS_BL_MOD_EN = 0, the pin controls backlight on/off. Otherwise, it is the PWM output to adjust the brightness. LVDS_GEN_CNTL.LVDS_BL_MOD_LEVEL can be used to control the backlight level (256 steps) by means of pulse width modulation. The duty cycle of the backlight signal can be set through the LVDS_GEN_CNTL.LVDS_BL_MOD_LEVEL bits. For example, setting these bits to a value of 32 will set the on-time to 32/256*(1/f) and the off-time to (256-32)/256*(1/f), where f is the XTALIN frequency and is typically 14MHz. Note that the PWM frequency can range from 5Hz to 50KHz and is set by LVDS_PWM_CNTL.PWM_CLK_CONF. For more information, refer to the Register Reference Manual. In CPIS mode, LVDS_BLON is VARY_BL as defined in CPIS. PWM mode should be enabled. LVDS_BLEN should be connected to ENA_BL, which turns the backlight AC inverter on/off.

LVDS Interface (Continued)

Pin Name	Type	Power Domain	Ground Domain	Integrated Termination	Functional Description
TXCLK_LP	O	LVDDR18A	LVSSR	None	LVDS lower clock channel (+) Transmitting at pixel clock rate, up to 85MHz pixel clock. This channel is used as the transmitting channel in single channel LVDS mode.
LPVDD	Pwr	–	–	–	Power for LVDS PLL macro (1.8V).
LVDDR18A	A-Pwr	–	–	–	1.8V LVDS Analog Power, used for the output stage of the transmitter. This power supply needs to be adequately filtered to prevent noise injection.
LVDS_DIGON	I/O	VDDR3	VSS	50kΩ programmable: PU/PD/none	Control Panel Digital Power On/Off. Active high.
LVDS_BLEN	I/O	VDDR3	VSS	50kΩ programmable: PU/PD/none	Enables Backlight for CPIS compliant LVDS panels. Active high.Controlled by the hardware power up/down sequencer. For more details, refer to *Figure 4-3, "LCD Panel Power Up/Down Timing," on page 4- 3*.

1 x 16 Lane PCI Express Interface for External Graphics

Pin Name	Type	Power Domain	Ground Domain	Integrated Termination	Functional Description
GFX_TX[15:0]P, GFX_TX[15:0]N	O	VDDA_18	VSSA	50Ω between complements	Transmit Data Differential Pairs. Connect to external connector for an external graphics card on the motherboard (if implemented).
GFX_RX[15:0]P, GFX_RX[15:0]N	I	VDDA_18	VSSA	50Ω between complements	Receive Data Differential Pairs. Connect to external connector for an external graphics card on the motherboard (if implemented).
GFX_CLKP, GFX_CLKN	I/O	VDDA_18	VSSA	50Ω between complements	Clock Differential Pairs. Connect to external clock generator when an external graphics card is implemented.

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5.2 ATI RS480M North Bridge(5)

Power Management Pins

Pin Name	Type	Power Domain	Ground Domain	Functional Description
SYSRESET#	I	VDDR3	VSS	Global Hardware Reset. This signal comes from the south bridge.
SUS_STAT#	I	VDD_18	VSS	Disable internal clock tree during S1-S3 states. Keep frame buffer side port memory, when installed, in self refresh mode when system is in S3 mode. (NOTE: Signaling level is 1.8V)
POWERGOOD	I	VDDR3	VSS	Input from the motherboard signifying that the power to the RS480M is up and ready. Signal High means all power planes are valid. It is not observed internally until it has been high for more than 6 consecutive REFCLK cycles. The rising edge of this signal is deglitched. Needs an external pull-up to a minimum of 2.5V.
LDTSTOP#	I	VDDR3	VSS	HyperTransport Stop. Input from the IXP to enable and disable the HyperTransport link during system state transitions. For systems requiring power management. Single-ended.
ALLOW_LDTSTOP	O	VDDR3	VSS	Output going to the IXP to allow LDTSTOP assertions: 1 = LDTSTOP# can be asserted 0 = LDTSTOP# has to be de-asserted

GDDR Side-Port Memory Interface (Continued)

Pin Name	Type	Power Domain	Ground Domain	Integrated Termination	Functional Description
MEM_COMPP, MEM_COMPN	Other	VDD_MEM	VSS	None	Memory interface compensation pins for N and P channel devices. Connect through resistors to VDD_MEM and ground respectively (refer to the reference schematics for the proper resistor values).
MEM_VREF	Other	–	VSS	None	Reference voltage(1.25V typ. for SSTL-2 / 0.5 * VDD, 1.5V typ. for SSTL-3 / 0.45 * VDD). **Note:** If the differential signaling interface is not used, this pin must be connected to the memory IO's VDD_MEM (1.8 or 2.5V).
MEM_CAP[2:1]	Other	VDD_MEM	VSS	None	These pads provide off-chip filtering of the VDD_MEM power. This is required for 2.5V support of GDDR.

DVO Interface

Pin Name	DVO Function	Type	Functional Description
MEM_DQ52	DVO_D0	O	DVO Data for panel
MEM_DQ49	DVO_D1	O	DVO Data for panel
MEM_DQ50	DVO_D2	O	DVO Data for panel
MEM_DQ51	DVO_D3	O	DVO Data for panel
MEM_DQ39	DVO_D4	O	DVO Data for panel
MEM_DQ48	DVO_D5	O	DVO Data for panel
MEM_DQ38	DVO_D6	O	DVO Data for panel
MEM_DQ37	DVO_D7	O	DVO Data for panel
MEM_DQ36	DVO_D8	O	DVO Data for panel
MEM_DQ35	DVO_D9	O	DVO Data for panel
MEM_DQ34	DVO_D10	O	DVO Data for panel
MEM_DQ33	DVO_D11	O	DVO Data for panel
MEM_DQ53	DVO_DE	O	DVO Display Enable signal for panel
MEM_DQ54	DVO_HSYNC	O	DVO Horizontal Sync signal for panel
MEM_DQ55	DVO_VSYNC	O	DVO Vertical Sync signal for panel
MEM_DQS4P	DVO_CLK *	O	DVO clock
MEM_DQS4N	DVO_CLK# *	O	DVO clock
TMDS_HPD	DVO_HPD **	I	"Hot Plug" panel detection input pin that monitors if the voltage is greater than 2.0V on the hot-plugging line
I2C_CLK	DVO_DVI_CLK	I/O	DDC clock for the DVO interface
DDC_DATA	DVO_DVI_DATA	I/O	DDC data for the DVO interface

* The clock signal and its inverses are required for implementation of the DVO interface.
** Optional for the implementation of the DVO interface.

5.2 ATI RS480M North Bridge(6)

Miscellaneous Pins

Pin Name	Type	Power Domain	Ground Domain	Integrated Termination	Functional Description
BMREQ#	Out	VDDR3	VSS	–	This pin is connected to the south bridge. This signal indicates that there is a DMA request from a PCI Express Bus device.
I2C_CLK	I/O	VDDR3	VSS	–	I2C interface clock signal. Can also be used simultaneously as DDC interface clock for the LVDS interface or the external DVO interface. It can also be used as GPIO.
I2C_DATA	I/O	VDDR3	VSS	–	I2C interface data signal. Can also be used as GPIO.
DDC_DATA	I/O	VDDR3	VSS	50kΩ programmable: PU/PD/none	Pin for additional DDC Data Channel for the LVDS interface or the external DVO interface. It makes use of I2C_CLK to create an I2C interface. Can also be used as GPIO.
STRP_DATA	I/O	VDDR3	VSS	–	I2C interface data signal for external EEPROM based strap loading. See the RS480M Strap Document for details on the operation. Can also be used as GPIO or NB Voltage throttling on mobile platforms.
TESTMODE	I	VDDR3	VSS	–	When High, puts the RS480M in Tester mode and disables the RS480M from operating normally.
THERMALDIODE_P, THERMALDIODE_N	A-O	–	–	–	Diode connections to external SM Bus microcontroller for monitoring IC thermal characteristics.
TMDS_HPD	I	VDDR3	VSS	PU	TMDS Hot Plug Detect. “Hot Plug” panel detection input pin that monitors if the voltage is greater than 2.0V on the hot-plugging line.
DFT_GPIO[5:0]	I/O	VDDR3	VSS	PU	GPIO for DFT use. **Note:** Because DFT_GPIO[5, 1:0] are used as strap pins (see *Table 3-15, “Strap Definitions for the RS480M”*), they cannot be used for general GPIO functions.

Strap Definitions for the RS480M

Strap Function	Strap Pin	Description
LOAD_MEM_STRAPS#	DFT_GPIO5*	Selects loading of straps from MEM_DQ pins for debug bus 0 : Capture MEM_DQ pins for debug bus straps. **1 : Use Default Values (Default)** Note : More information about straps on the MEM_DQ pins is available in the Debug Bus specification.
HT_FREQ_OVERRIDE	DFT_GPIO[4:3]	Overrides HT Link frequency at power up 00 : Reserved – for testing only. 01 : Reserved – for testing only. 10 : Reserved – for testing only. **11 : 200 MHz (Default)**
HT_WIDTH_OVERRIDE	DFT_GPIO2	Override HT Link width at power up 0 : Reserved – for testing only. **1 : 8 Bit Link (Default)**
LOAD_ROM_STRAPS#	DFT_GPIO1*	Selects loading of strap values from EEPROM 0: I2C master can load strap values from EEPROM if connected, or use default values if not connected **1: Use Default Values (Default)**
SIDE_PORT_EN#	DFT_GPIO0*	Indicates if memory side port is available or not 0: Memory side port available **1: Memory side port NOT available (Default)**

Note: Strap pins marked by “*” cannot be used for general GPIO functions.

PCI Express Interface for Miscellaneous PCI Express Signals

Pin Name	Type	Power Domain	Ground Domain	Functional Description
PCE_ISET	Other	VDDA_18	VSSA	Current Calibration for for Rx Channel
PCE_TXISET	Other	VDDA_18	VSSA	Current Calibration for for Tx Channel
PCE_NCAL	Other	VDDA_18	VSSA	N channel Driver Compensation Calibration for Rx and Tx Channels
PCE_PCAL	Other	VDDA_18	VSSA	P channel Driver Compensation Calibration for Rx and Tx Channels

5.2 ATI RS480M North Bridge(7)

Power Pins

Pin Name	Voltage	Pin Count	Ball Reference	Comments
AVDD	2.5V or 3.3V	2	B27, C27	Dedicated power for the DAC. Effort should be made at the board level to provide as clean a power as possible to this pin to avoid noise injection, which can affect display quality. Adequate decoupling should be provided between this pin and AVSS.
AVDDQ	1.8V	1	E24	DAC Bandgap Reference Voltage
AVDDDI	1.8V	1	C24	Dedicated digital power for the DAC
VDD_CORE	1.2V	47	A22, B21, B22, C21, C22, D21, D22, E21, E22, F21, F22, G21, G22, H21, H22, M13, M15, M17, M19, N12, N14, N16, N18, P13, P15, P17, P19, R12, R14, R16, R18, T13, T15, T17, T19, U12, U14, U16, U18, V13, V15, V17, V19, W12, W14, W16, W18	Core power
VDD_18	1.8V	3	AC15, AC17, H15	I/O Transform Power for memory, CPU, and GPIO sections.
VDDA_12	1.2 V	14	AA7, AA8, B1, F9, G7, G8, G9, H9, J7, J8, N7, N8, U7, U8	PCI Express interface main I/O power
VDDA_18	1.8V	13	AC7, AC8, AE6, AF5, AF6, AG4, AK2, L7, L8, R7, R8, W7, W8	PCI Express interface power for output Tx stage
VDD_MEM	1.8 / 2.5V	18	AC10, AC12, AC14, AC18, AC20, AC22, AD10, AD12, AD14, AD15, AD18, AD20, AD22, AE30, AK11, AK23, AK28, AK4	Isolated IO power for memory interface

Power Pins (Continued)

Pin Name	Voltage	Pin Count	Ball Reference	Comments
VDD_MEMCK	1.8 / 2.5V	1	AH15	IO Power for memory clocks
VDD_HT	1.2V	31	A23, A29, AA23, AA27, AB23, AB24, AB27, AC30, B23, C23, D23, E23, F23, G23, G27, H23, H27, J23, J27, K23, K24, K27, N27, P24, P27, U23, U27, V23,V24,V27,W23	IO power for HyperTransport interface
VDDR3	3.3V	2	H12, H13	IO power for the following I/O pads: OSC, POWERGOOD, SYSRESET#
LPVDD	1.8V	1	E18	Power for LVDS PLL macro.
LVDDR18D	1.8V	1	E19	1.8V LVDS Digital Power
LVDDR18A	1.8V	2	G20, H20	1.8V LVDS Analog Power
PLLVDD	1.8V	1	A14	Power for PLL
HTPVDD	1.8V	1	M23	Power for HyperTransport interface PLL
MPVDD	1.8V	1	AJ15	Power for memory interface PLL
Total Power Pin Count		140		

1 x 2 Lane A-Link Express Interface for IXP

Pin Name	Type	Power Domain	Ground Domain	Integrated Termination	Functional Description
SB_TX[1:0]P, SB_TX[1:0]N	O	VDDA_18	VSSA	50Ω between complements	Transmit Data Differential Pairs. Connect to the corresponding Receive Data Differential pairs on the IXP.
SB_RX[1:0]P, SB_RX[1:0]N	I	VDDA_18	VSSA	50Ω between complements	Receive Data Differential Pairs. Connect to the corresponding Transmit Data Differential pairs on the IXP.
SB_CLKP, SB_CLKN	I/O	VDDA_18	VSSA	50Ω between complements	Clock Differential Pair. Connect to an external clock generator on the motherboard.

5.2 ATI RS480M North Bridge(8)

Ground Pins

Pin Name	Pin Count	Ball Reference	Comments
AVSSN	2	D25, D26	Dedicated analog ground for the DAC.
AVSSQ	1	D24	Dedicated ground for the Band Gap Reference. Effort should be made at the board level to provide as clean a ground as possible to this pin to avoid noise injection, which can affect display quality. Adequate decoupling should be provided between this pin and AVDD.
LVSSR	8	E20, F18, F19, F20, G18, G19, H18, H19	LVDS Interface ground pin. For Desktop: bond it to VSS (core ground) on the substrate
VSS	131	AA28, AB25, AB28, AC11, AC13, AC16, AC19, AC21, AC23, AC27, AC9, AD11, AD13, AD16, AD17, AD19, AD21, AD23, AD24, AD25, AD27, AD28, AD29, AD7, AD8, AD9, AE26, AE27, AF30, AG12, AG15, AG18, AG21, AG24, AG27, AG5, AG6, AG9, AJ30, AK10, AK22, AK29, AK5, B30, C28, D10, D11, D12, D15, D9, E15, E16, E26, E9, F15, F16, F24, F25, F26, F27, F28, G10, G11, G12, G13, G14, G15, G16, G17, G28, G30, H10, H11, H14, H16, H17, H24, H28, J28, K25, K28, L27, M12, M14, M16, M18, M24, M27, N13, N15, N17, N19, N28, P12, P14, P16, P18, P25, P28, R13, R15, R17, R19, R23, R27, T12, T14, T16, T18, T23, T24, T27, U13, U15, U17, U19, U28, V12, V14, V16, V18, V25, V28, W13, W15, W17, W19, W27, Y23, Y24, Y27	Common Ground

Ground Pins (Continued)

Pin Name	Pin Count	Ball Reference	Comments
AVSSDI	1	B24	Dedicated digital ground for the DAC (1.8V)
LPVSS	1	F17	LVDS PLL macro ground pin. For Desktop: bond it to VSS (core ground) on the substrate
VSSA	68	A2 AA3, AA5, AA6, AB3, AB7, AB8, AD3, AD5, AD6, AE3, AE5, AF3, AG3, AJ1, B4, C2, C3, C4, C5, C6, C7, C8, C9, D3, D6, E5, E6, F3, F5, F6, F7, F8, G3, H7, H8, J3, J5, J6, K3, K7, K8, L5, L6, M3, M5, M6, M7, M8, N3, P7, P8, R3, R5, R6, T3, T7, T8, U5, U6, V3, V5, V6, V7, V8, W3, Y7, Y8	PCI Express Interface Ground
PLLVSS	1	B14	Ground pin for PLL
HTPVSS	1	L23	Ground pin for HyperTransport interface PLL
MPVSS	1	AJ14	Ground pin for memory interface PLL
Total Ground Pin Count	215		

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5.3 ULI M1573 South Bridge(1)

PCI Interface

Pin Name	I/O Type	Description
PCICLK	I	**PCI Clock for Internal PCI Interface.** This is a PCI clock input that is controlled by clock generator.
PCI_OUTCLK[9:0]	O	**PCI Clock Output.** This is PCI output clocks for PCI device.
PCICLK_FBKO	O	**PCI Clock Feedback Out Signal.** This is a PCI clock feedback input path.
PCICLK_FBKI	I	**PCI Clock Feedback In Signal.** This is a PCI clock feedback input path.
PCIREQ#[3:0] PCIREQ#[6:4]/ RUNGPI[6:4]	I	**PCI Requests.** PCI master requests for the PCI bus ownership. M1573 supports up to 7 masters on the PCI bus. PCIREQ#[0] is programmable to have the highest priority of the PCI arbitration for supporting PCI-based 1394 controller. PCIREQ#[6:4] can be configured as RUNGPI.
PCIGNT#[3:0] PCIGNT#[6:4]/ RUNGPO[6:4]	O	**PCI Grants.** PCI master be granted for the PCI bus ownership. M1573 supports up to 7 masters on the PCI bus. PCIGNT#[6:4] can be configured as RUNGPO.
PIRQ#[D:A] PIRQ#[H:E]/ RUNGPI[10:7]	I	**PCI Interrupt Requests.** In legacy 8259 mode, PIRQ#[H:A] signals can be routed to legacy IRQs through the routing table defined in the PCI-legacy device configuration registers 4Bh – 48h. In APIC mode, PIRQ#[A] is connected to entry-16, PIRQ#[B] to entry-17, PIRQ#[C] to entry-18, PIRQ#[D] to entry-19, PIRQ#[E] is connected to entry-20, PIRQ#[F] to entry-21, PIRQ#[G] to entry-22, and PIRQ#[H] to entry-23. PIRQ#[H:E] can be configured as RUNGPI.
CLKRUN#/ RUNGPO[9]	I/O O	**PCI Clock Run control.** This signal is used to support PCI Clock Run CLKRUN# protocol. It can also be configured as RUNGPO.
AD[31:0]	I/O	**PCI Address and Data Multiplexed Bus.** During the first clock of a PCI transaction, AD[31:0] contain a physical address. During subsequent clocks, AD[31:0] contain data.
CBE#[3:0]	I/O	**PCI Bus Command and Byte Enable.** During address phase, CBE#[3:0] define the Bus Command. During the data phase, CBE#[3:0] define the Byte Enables.

PCI Interface (Continued)

Pin Name	I/O Type	Description
FRAME#	I/O	**PCI Cycle Frame.** Cycle Frame is driven by current initiator to indicate the beginning and duration of a PCI access.
IRDY#	I/O	**PCI Initiator Ready.** Initiator Ready indicates the initiator's ability to complete the current data phase of the transaction.
TRDY#	I/O	**Target Ready.** Target Ready indicates the target's ability to complete the current data phase of the transaction.
DEVSEL#	I/O	**PCI Device Select.** This signal indicates that the target device has decoded the address as its own cycle.
STOP#	I/O	**Cycle Stop Request.** Cycle Stop indicates the target is requesting the master to stop the current transaction.
SERR#	I	**PCI System Error.** This signal may be pulsed active by any agent that detects a system error condition. When SERR# is sampled low, the M1573 will assert NMI to generate non-maskable interrupt to CPU.
PAR	I/O	**PCI Parity Signal.** PAR is an Even Parity and is calculated on AD[31:0] and CBE#[3:0].
PCIRST#	O	**PCI Bus Reset.** This is an output signal to reset the entire PCI Bus.
PME#	I/O	**PCI Power Management Event.** This signal is used by a PCI device to request a change of its power consumption state. Typically, an active PME# issued by a device is to wake up a power saving state of device or system to the fully operational state.

5.3 ULI M1573 South Bridge(2)

LAN Interface

Pin Name	I/O Type	Description
MII Interface		
MII_COL	I	**Collision Detect.** Asserted high to indicate detection of collision conditions in 10Mbps and 100Mbps Half Duplex modes. In Full Duplex mode, this signal is always logic 0. There is no heartbeat function in Full-Duplex mode.
MII_CRS	I	**Carrier Sense.** This pin is asserted high to indicate the presence of carrier due to receive or transmit activities in 10BASE-T or 100BASE-TX Half Duplex modes. In Repeater, when Full Duplex or Loopback mode is a logic 1, it indicates the presence of carrier due only to receive activity.
MII_RXER	I	**Receiver Error.** Receiver error asserts when a data decoding error is detected by the external PHY device.
MII_RXC	I	**Receive Clock.** Provides the recovered receive clock for different modes of operation: - 25MHz nibble clock in 100Mbps mode - 2.5MHz nibble clock in 10Mbps nibble mode
MII_RXD[3:0]	I	**Receive Data.** Nibble wide receive data (synchronous to RX_CLK – 25MHz for 100BASETX mode, 2.5MHz for 10BASE-T nibble mode).
MII_RXDV	I	**Receive Data Valid.** Data valid is asserted by the external PHY device when receive data is present on the RXD lines and is de-asserted at the end of packet.
MII_TXC	I	**Transmit Clock.** Transmit clock input from the PHY. - 25MHz nibble transmit clock derived from transmit Phase Locked Loop(TX PLL) in 100BASE-TX mode - 2.5MHz transmit clock in 10BASE-T nibble mode
MII_TXD[3:0]	O	**Transmit Data.** Transmit data output pins for nibble data from the MII in 100Mbps or 10Mbps nibble mode (25 MHz for 100Mbps mode, 2.5MHz for 10Mbps nibble mode).
MII_TXEN	O	**Transmit Enable.** Active high output indicates the presence of valid nibble data on TXD[3:0] for both 100Mbps or 10Mbps nibble mode.

LAN Interface (Continued)

Pin Name	I/O Type	Description
MII Interface		
MII_MDC	O	**Management Data Clock.** Synchronous clock to the MDIO management data input/output serial interface which is asynchronous to transmit and receive clocks. The maximum clock rate is 2.5MHz.
MII_MDIO	I/O	**Management Data I/O.** Bi-directional management instruction/data signal that may be sourced by the station management entity or the PHY. This pin requires a 4.7Kohm pull-up resistor.
EEPROM Interface		
EEDO	O	**Serial EEPROM data output** It is connected to DI(data input) pin of the serial EEPROM and used to transfer the data from the south bridge to the EEPROM. The Serial ROM is used to auto-load Ethernet GUID.
EEDI	I	**Serial EEPROM data input** It is connected to DO(data output) pin of the serial EEPROM and used to transfer the data from the EEPROM to south bridge. The Serial ROM is used to auto-load Ethernet GUID.
EECS	O	**EEPROM Chip Select.** This pin will enable the EEPROM during loading of the Configuration Data.
EECK	O	**EEPROM Serial Clock.** This pin provides the clock for the EEPROM data transfer.

SMBus Interface

Pin Name	I/O Type	Description
SMB_ALERT#/ RSMGPI[10]	I	SMBus Alert SMBus devices can signal alert to SMBus host by asserting this signal to generate SMI or to wake up the system. This pin can be configured as RSMGPI.
SMB_CLK	I/OD	SMBus Clock SMBus clock signal driven by cycle initiator.
SMB_DATA	I/OD	SMBus Data SMBus data signal carries serial data information based on SMCLK.

5.3 ULI M1573 South Bridge(3)

IDE Interface

Pin Name	I/O Type	Description
Parallel ATA Interface		
PIDEA[2:0]	O	**Primary Channel IDE ATA Address Bus.** These are the Address pins connected to Primary Channel.
PIDECS1#	O	**Primary Channel 0 IDE Chip Select 1.** This is the Chip Select 1 command output pin to enable the Primary IDE device to watch the Read/Write Command.
PIDECS3#	O	**Primary Channel 1 IDE Chip Select 3.** This is the Chip Select 3 command output pin to enable the Primary IDE device to watch the Read/Write Command.
PIDED[15:0]	I/O	**Primary IDE ATA Data Bus.** These are the Data pins connected to Primary Channel.
PIDEDAK#	O	**Primary IDE DACK# for IDE Master.** This is the output pin to grant the Primary Channel IDE DMA request to begin the IDE Master Transfer in DMA or Ultra-33/66/100/133 mode.
PIDEDRQ	I	**Primary IDE DMA Request for IDE Master.** This is the input pin from the Primary Channel IDE DMA request to do the IDE Master Transfer. It will be active high in DMA or Ultra-33/66/100/133 mode and always be inactive low in PIO mode.
PIDEIOR#	O	**Primary IDE IOR# Command.** This is the IOR# command output pin to notify the Primary IDE device to assert the Read Data in PIO and DMA mode. In Ultra-33/66/100/133 mode, this pin has different functions. In read cycle, this pin is used by IDE Controller to notify IDE device as DMA Ready (DDMARDY#). In write cycles, IDE Controller will drive this signal as Data Strobe (DSTROBE) to use by IDE device to strobe the output data.
PIDEIOW#	O	**Primary IDE IOW# Command.** This is the IOW# command output pin to notify the Primary IDE device that the available Write Data is already asserted by IDE Controller in PIO and DMA mode. In Ultra-33/66/100/133 mode, this pin is driven by IDE Controller to force IDE device to terminate current transaction. After receiving this input, IDE device will de-assert DRQ to STOP current transaction.
PIDEIRQ	I	**Primary IDE IRQ Input1.** This is a steer-able Interrupt input, the M1573 will provide a Routing Mechanism to route this Interrupt to any 8259 input for built-in IDE Controller.

IDE Interface (Continued)

Pin Name	I/O Type	Description
Parallel ATA Interface		
PIDERDY	I	**Primary IDE Ready.** This is the input pin from the Primary IDE Channel to indicate the IDE device is ready to terminate the IDE command in PIO mode. The IDE device can de-assert this input (logic 0) to expand the IDE command if the device is not ready. In Ultra-33/66/100/133 mode, this pin has different functions. In read cycles, IDE device will drive this signal as Data Strobe (DSTROBE) to use by IDE controller to strobe the input data. In write cycle, this pin is used by IDE device to notify IDE Controller as DMA Ready (DDMARDY#).
SIDEA[2:0]	O	**Secondary IDE ATA Address Bus.** These are the Address pins connected to Secondary Channel.
SIDECS1#	O	**Secondary Channel 0 IDE Chip Select 1.** This is the Chip Select 1 command output pin to enable the Secondary IDE device to watch the Read/Write Command.
SIDECS3#	O	**Secondary Channel 1 IDE Chip Select 3.** This is the Chip Select 3 command output pin to enable the Secondary IDE device to watch the Read/Write Command.
SIDED[15:0]	I/O	**Secondary IDE ATA Data Bus.** These are the Data pins connected to Secondary Channel.
SIDEDAK#	O	**Secondary IDE DACK# for IDE Master.** This is the output pin to grant the Secondary Channel IDE DMA request to begin the IDE Master Transfer in DMA or Ultra-33/66/100/133 mode.
SIDEDRQ	I	**Secondary IDE DMA Request for IDE Master.** This is the input pin from the Secondary Channel IDE DMA request to do the IDE Master Transfer. It will be active high in DMA or Ultra-33/66/100/133 mode and always be inactive low in PIO mode.
SIDEIOR#	O	**Secondary IDE IOR# Command.** This is the IOR# command output pin to notify the Secondary IDE device to assert the Read Data in PIO and DMA mode. In Ultra-33/66/100/133 mode, this pin has different functions. In read cycle, this pin is used by IDE Controller to notify IDE device as DMA Ready (DDMARDY#). In write cycle, IDE Controller will drive this signal as Data Strobe (DSTROBE) to use by IDE device to strobe the output data.

5.3 ULI M1573 South Bridge(4)

IDE Interface (Continued)

Pin Name	I/O Type	Description
Parallel ATA Interface		
SIDEIOW#	O	**Secondary IDE IOW# Command.** This is the IOW# command output pin to notify the Secondary IDE device that the available Write Data is already asserted by IDE Controller in PIO and DMA mode. In Ultra-33/66/100/133 mode, this pin is driven by IDE Controller to force IDE device to terminate current transaction. After receiving this input, IDE device will de-assert DRQ to STOP current transaction.
SIDEIRQ	I	**Secondary IDE IRQ Input2.** This is a steer-able Interrupt input, the M1573 will provide a Routing Mechanism to route this Interrupt to any 8259 input for built-in IDE Controller.
SIDERDY	I	**Secondary IDE Ready.** This is the input pin from the Secondary IDE Channel to indicate the IDE device is ready to terminate the IDE command in PIO mode. The IDE device can de-assert this input (logic 0) to expand the IDE command if the device is not ready. In Ultra-33/66/100/133 mode, this pin has different functions. In read cycles, IDE device will drive this signal as Data Strobe (DSTROBE) to use by IDE Controller to strobe the input data. In write cycles, this pin is used by IDE device to notify IDE Controller as DMA Ready (DDMARDY#).
Serial ATA Interface		
SATA0_TX0P, SATA0_TX0N	O	Serial-ATA0 port0 Transmission signal pair
SATA0_RX0P, SATA0_RX0N	I	Serial-ATA0 port0 Receiving signal pair
SATA0_TX1P, SATA0_TX1N	O	Serial-ATA0 port1 Transmission signal pair
SATA0_RX1P, SATA0_RX1N	I	Serial-ATA0 port1 Receiving signal pair
SATA0_REXT	I	SATA0 External Resistor reference for impendence adjustment.
SATA1_TX0P, SATA1_TX0N	O	Serial-ATA1 port0 Transmission signal pair
SATA1_RX0P, SATA1_RX0N	I	Serial-ATA1 port0 Receiving signal pair
SATA1_TX1P, SATA1_TX1N	O	Serial-ATA1 port1 Transmission signal pair

IDE Interface (Continued)

Pin Name	I/O Type	Description
Serial ATA Interface		
SATA1_RX1P, SATA1_RX1N	I	Serial-ATA1 port1 Receiving signal pair
SATA1_REXT	I	SATA1 External Resistor reference for impendence adjustment.
SATA_GPI[3:0]/ RUNGPI[22:19]	I	Serial-ATA General Purpose IO. It can be configured as RUNGPI.
SATA_GPO[3:0]/ RUNGPO[28:25]	O	Serial-ATA1 General Purpose IO. It can be configured as RUNGPO.
SATA_LED	OD	Serial-ATA LED

Host PCI Express Interface

Pin Name	I/O Type	Description
PE_RefClkP, PE_RefClkN	I	**Differential reference clock signals.** Clock frequency ranges from 100 MHz.
Lane Transmit Interface		
SB_TAP, SB_TAN	O	Differential transmit outputs for lane A
SB_TBP, SB_TBN	O	Differential transmit outputs for lane B
SB_TCP, SB_TCN	O	Differential transmit outputs for lane C
SB_TDP, SB_TDN	O	Differential transmit outputs for lane D
Lane Receive Interface		
SB_RAP, SB_RAN	I	Differential receive inputs for lane A
SB_RBP, SB_RBN	I	Differential receive inputs for lane B
SB_RCP, SB_RCN	I	Differential receive inputs for lane C
SB_RDP, SB_RDN	I	Differential receive inputs for lane D
Reference Resistors		
REF	I	Used to connect a (2.4K? +/- 1%) external resistor to VSS to provide a reference current for the driver and equalization circuits

5.3 ULI M1573 South Bridge(5)

Audio Interface

Pin Name	I/O Type	Description
AC-Link Signals		
ACZ_RST#	O	**AC97 Reset Signal.** This is the AC'97 Codec(s) master hardware reset signal output. **HD Audio Reset Signal.** This is the HD Audio Codec(s) master hardware reset signal output.
ACZ_SYNC	O	**AC'97 SYNC Signal.** This signal is used for AC'97 48 KHz fixed rate sample sync. **HD Audio SYNC Signal.** This signal is used for HD Audio 48 KHz fixed rate sample sync.
ACZ_SDOUT	O	**AC'97 Serial Data Output Signal.** This signal is used for serial, time division multiplexing, AC'97 output stream to the Codec(s). **HD Audio Serial Data Output Signal.** This signal is used for serial, time division multiplexing, HD Audio output stream to the Codec(s).
ACZ_BITCLK	I/O	**AC97 Bit Clock Input Signal.** This signal is used for AC97 12.288 MHz serial data clock. **HD Audio Bit Clock Output Signal.** This signal is used for HD Audio 12.288 MHz serial data clock.
ACZ_SDATAIN[2:0]	I/O	**AC97 Serial Data Input[2:0].** These signals are used for serial, TDM (Time Division Multiplexing), AC'97 input stream from the Codecs. **HD Audio Serial Data Input[2:0].** These signals are used for serial, TDM (Time Division Multiplexing), HD Audio input stream from the Codecs.
ACB_RST#/ RSMGPO[10]	O	**AC97 LinkB Reset Signal.** This is the AC'97 Codec(s) master hardware reset signal output. This pin can be configured as RSMGPO.
ACB_SYNC / RUNGPO[23]	O	**AC'97 LinkB SYNC Signal.** This signal is used for AC'97 48 KHz fixed rate sample sync. This pin can be configured as RUNGPO.
ACB_SDOUT / RUNGPO[24]	O	**AC'97 Serial Data Output Signal.** This signal is used for serial, time division multiplexing, AC'97 output stream to the Codec(s). This pin can be configured as RUNGPO.
ACB_BITCLK / RUNGPI[18]	I	**AC97 LinkB Bit Clock Input Signal.** This signal is used for AC97 12.288 MHz serial data clock. This pin can be configured as RUNGPI.

Audio Interface (Continued)

Pin Name	I/O Type	Description
AC-Link Signals		
ACB_SDATAIN / RSMGPI[15]	I	**AC97 LinkB Serial Data Input.** These signals are used for serial, TDM (Time Division Multiplexing), AC'97 input stream from the CODEC. This pin can be configured as RSMGPI.
Audio Miscellaneous Interface		
VOL_UP#/ RUNGPI[11]	I	**Volume Up Control Signal for Audio.** This pin is used to tune up audio volume and connects to AC97 GPIO[1] input. This pin can be configured as RUNGPI.
VOL_DOWN#/ RUNGPI[12]	I	**Volume Down Control Signal for Audio.** This pin is used to down audio volume connects to AC97 GPIO[0] input. This pin can be configured as RUNGPI.
VOL_MUTE#/ RUNGPI[13]	I	**Volume Mute Control Signal for Audio.** This pin is used to mute audio and connects to AC97 GPIO[2] input. This pin can be configured as RUNGPI.

LPC Interface

Pin Name	I/O Type	Description
LFRAME#	O	**Low Pin Count FRAME# Signal.** This signal is the frame signal of Low Pin Count interface.
LAD[3:0]	I/O	**LAD[3:0].** These pins are address/data signals for Low-Pin-Count interface.
LDRQ[0]# LDRQ[1]#/ RUNGPI[14]	I	**Low Pin Count DMA Request Signal[1:0].** These pins are DMA request signals used by LPC devices. LDRQ[1]# can be configured as RUNGPI.

5.3 ULI M1573 South Bridge(6)

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PMU Interface

Pin Name	I/O Type	Description
ACPWR (Mobile Only) / RSMGPI[12]	I	**AC Power Plug-in Indication.** This active high input indicates the AC adapter is plugged in the mobile mode. This pin can be configured as RSMGPI.
AGPSTOP# (Mobile Only)	O	**Stop AGP Device Clock.** This signal is used by M1573 to indicate that the AGP clock will be stopped.
CLK32KO/ RSMGPO[8]	O	**32 KHz Clock Output for DRAM Refresh.** In S1 and S3 states, this output will send 32KHz clock to Memory controller to support suspend-mode DRAM refresh. In S4 and S5 states, this output will be driven low. This pin can be configured as RSMGPO.
CPUSTP#/ RUNGPO[7]	O	**CPU Clock Stop.** This output signal controls clock generator to stop the CPU Clock. This signal can be configured as RUNGPO.
LID (Mobile Only) / RSMGPI[14]	I	**LID Cover Switch.** The input indicates LID status of a mobile system and can issue SMI, SCI. This pin can be configured as RSMGPI.
LOWBAT# (Mobile Only) / RSMGPI[13]	I	**Battery Low Indication.** The input indicates the battery status for a mobile system. This pin can be configured as RSMGPI.
OFFCLKS1# / RSMGPO[16]	O	**Clock Generator OFF.** This output signal is used to power down the clock generator. This signal can be configured as RSMGPO.
OFFPWRS3# / RSMGPO[17]	O	**Power Off Control in S3.** This output is used to shut off all the non-required power when system gets into S3-S5 states. This signal can be configured as RSMGPO.
OFFPWRS4_S5# / RSMGPO[18]	O	**Power Off Control in S4/S5.** This output is used to shut off all the non-required power when system gets into S4-S5 states. This signal can be configured as RSMGPO.
PCISTP# / RUNGPO[8]	O	**PCI Clock Stop.** This output is used to control clock generator stopping the PCI Bus Clock. This signal can be configured as RUNGPO.
PWG	I	**Power-Good Input.** This signal indicates that system power is available and stable. M1573 uses this signal to generate reset sequence for the system.

PMU Interface (Continued)

Pin Name	I/O Type	Description
PWRBTN#	I	**Power Button Input.** This input is used to support the ACPI Power Button function. Both 4-second Override to Soft Off state and Resume from Suspend mode functions are supported.
RI	I	**Ring In.** This input connects to Modem Ring-in input to support ACPI Ring-in function. There exists a Ring counter to count the amount of Ring-In pulses for generating events.
RSMRST#	I	**Resume Circuit Reset Input.** The M1573 will activate internal reset signal to initialize the resume-region circuits.
SLPBTN# / RSMGPIL[0]	I	**Sleep Button Input.** This input is used to support the ACPI Sleep Button function. This signal can be configured as RSMGPIL.
SUSLED / RSMGPO[7]	O	**Suspend LED Output**. This output pin controls LED on/off and is served as suspend status indicator. This signal can be configured as RSMGPO.
THRM#	I	**Thermal Event Input.** THRM# is a triggered input and indicates that the external thermal detect circuits request for entering power management mode.
THRMTRIP#	I	**Thermal Trip.** This input is a hardware failsafe mechanism of CPU to avoid damages in thermal run-away situation. It's a 2.5V open-drain output from CPU.
PCIEX_WAKEUP#	I	**PCI Express Wakeup.** This signal is used by the PCI Express devices to wake up system from power suspend states.
DSPVRHI / RUNGPO[10]	O	**Deeper Sleep – Voltage Regulator High/Low Selection.** This signal is used to select the voltage regulator high/low voltage for the CPU normal/deeper sleep state, and can be optionally configured as RUNGPO.
SUSPEND# / RSMGPO[9]	O	**Suspend Status for North Bridge.** This output is used to request the north bridge to switch from normal DRAM refresh to suspend DRAM refresh mode. This signal can be configured as RSMGPO.

5.3 ULI M1573 South Bridge(7)

PMU Interface (Continued)

Pin Name	I/O Type	Description
VRMPWG / VRGATE / ALLOW_HTTSTOP	I	**VRM Power Good (for P4 Desktop) / VRM Power Good Gate(for P4 Mobile)/NB Allow HTTSTOP#(for K8).** In P4 platform, this signal is used indicate that the CPU voltage is stable. In K8 platform, this signal output from the NB to notifies the SB whether it is allowed to assert or deassert HTTSTOP#. This controls the timing of the CPU entering and exiting C3.
AGPBUSY# (Mobile Only) / HTTREQ#(K8 Mode Only)	I	**AGP Device Busy.** This signal is used by M1573 to indicate that the AGP device is busy. **HyperTransport Request.** HTT device can use this input signal to request re-enabling HTT links for normal operation. It can also be used as AGP Busy in HyperTransport system implementation, i.e., the AGPBUSY# from AGP device can be connected to this pin.
VRHI# / RUNGPO[11]	O	**CPU High/Low Voltage Selection.** This signal is used to select the voltage high/low level for the CPU and can be optionally configured as RUNGPO.

Test Signals

Pin Name	I/O Type	Description
DFTSE/ NANDTEST	I	**DFT Scan Enable.** This signal is used as the DFT Scan Enable for ATPG pattern input when DFT_MODE is tied to high. It should be pull-low for normal operation. **NAND Tree TEST pin.** This signal is used as the NANDTREE TEST mode enable if it is tied to high when DFT_MODE is tied to low. It should be pull-low for normal operation.
DFTTM	I	**DFT Test Mode.** This signal is used as the DFT Test Mode Enable for ATPG pattern input. It should be pull-low for normal operation.

Clocks

Pin Name	I/O Type	Description
Real Time Clock Interface		
X32KI	I	**32 KHz Oscillator Input 1.** **This is a crystal input 1 from a 32.768 KHz Quartz Crystal. The input oscillator pad will generate the 32 KHz clock into the internal Suspend circuit and output the clock from the CLK32KO to DRAM Suspend Refresh Circuit. If a crystal is not used, this pin should be pulled to ground.**
X32KII	I	**32 KHz Oscillator Input 2.** This is a crystal input 2 from a 32.768 KHz Quartz Crystal. The input oscillator pad will generate the 32 KHz clock for the internal Suspend circuit and output the clock from the CLK32KO to DRAM Suspend Refresh Circuit. If a crystal is not used, an external 32 KHz clock input should be connected to this pin.
RTCRST#	I	**RTC Reset.** The input pin is used to reset internal battery-powered RTC SRAM.
X32K_OSC_MODE	I	**32K oscillator PAD large or small current mode switch.** It's Reserved for internal test only and should be tied low.
Other Clocks		
CLK14M	I	**14.318 MHz Clock Input.** This input clock will be used for Power Management timer, 8254 timer.
X25M1	I	Optional external 25MHz crystal input for SATA reference clock
X25M2	I	Optional external 25MHz crystal input for SATA reference clock
CLK24_48M	I	24/48 MHz Clock Output.

Miscellaneous Signals

Pin Name	I/O Type	Description
SPKR	O	**Speaker Output.** This output pin should be connected to the on-board speaker.
SERIRQ	I/O	**Serial Interrupt Request.** This pin is used to support the serial interrupt request protocol of common architecture.

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5.3 ULI M1573 South Bridge(8)

CPU Interface

Pin Name	I/O Type	Description
P4 Mode Interface		
A20M# / RUNGPO[12]	O	**CPU A20 Mask.** This is the CPU Address line A20 mask signal. It can be configured as RUNGPO.
CPUHI# (Mobile Only) / RUNGPO[13]	O	**CPU High/Low Performance Selection.** This signal is used to select the CPU high/low performance and can be optionally configured as RUNGPO.
CPUPWG/ RUNGPO[14]	O	**CPU Power Good.** This signal is connected to the PWRGOOD input of CPU and can be optionally configured as RUNGPO.
CPURST#/ RUNGPO[32]	OD	**CPU Cold Reset.** When system is powered on, this reset signal will be asserted and become de-asserted until 4 ms after HTTPWROK becomes high. This pin can be configured as RUNGPO.
DSLEEP#/ RUNGPO[15]	O	**CPU Deep Sleep.** This signal is used to force CPU entering deep sleep state. This signal can be configured as RUNGPO.
FERR#	I	**Floating Point Error.** FERR# input from coprocessor to generate IRQ13.
IGNNE#/ RUNGPO[16]	O	**Ignore Error.** This pin is used as the “ignore numeric coprocessor error” signal and connects to CPU. It can be configured as RUNGPO.
INIT#/ RUNGPO[17]	O	**CPU Initialization.** This signal will be asserted for 16 PCI clocks when M1573 resets the CPU. It can be configured as RUNGPO.
INTR/ RUNGPO[18]	O	**Interrupt Request to CPU.** This is the interrupt signal generated by the internal 8259 and should connect to CPU INTR as a maskable interrupt. It can be configured as RUNGPO.
NMI/ RUNGPO[19]	O	**Non-Maskable Interrupt to CPU.** This is generated by the PCI Parity error or SERR# assertion, and the other internal error event. This output should connect to CPU NMI as a non-maskable interrupt. It can be configured as RUNGPO.
SLEEP#/ RUNGPO[20]	O	**CPU Sleep.** This signal is used to force CPU entering sleep state. This signal can be configured as RUNGPO.
SMI#/ RUNGPO[21]	O	**System Management Interrupt.** This signal should be connected to CPU SMI# input. It can be configured as RUNGPO.

CPU Interface (Continued)

Pin Name	I/O Type	Description
P4 Mode Interface		
STPCLK#/ RUNGPO[22]	O	**Stop CPU Internal Clock Request.** This signal is used to make CPU enter power saving mode and stop the CPU internal clock. The signal should be connected to CPU STPCLK# input. It can be configured as RUNGPO.
A20GATE/ RUNGPI[15]	I	**A20 Gate.** This pin is the external Keyboard A20 gate signal and can be configured as RUNGPI.
KBCRC#/ RUNGPI[16]	I	**Keyboard RC.** This pin is the external Keyboard RC signal and can be configured as RUNGPI.
HTT Interface		
HTTSTOP#/ RUNGPO[31]	OD	**HyperTransport Stop** This output signal is used to enable and disable HyperTransport links during C3/C4 state or system power saving state transitions. This output should be externally pulled high as 2.5V with 10K resistor. This pin can be configured as RUNGPO.
HTTRESET#/ RUNGPO[30]	OD	**HyperTransport Reset** This output signal is used to reset the HyperTransport chain. This output should be externally pulled high as 2.5V with 10K resistor. This pin can be configured as RUNGPO.
HTTPWROK/ RUNGPO[29]	OD	**HyperTransport Power OK.** This output signal is used by a HyperTransport device to indicate that the power and clocks are stable. This output should be externally pulled high as 2.5V with 10K resistor. This pin can be configured as RUNGPO.

General Purpose I/O

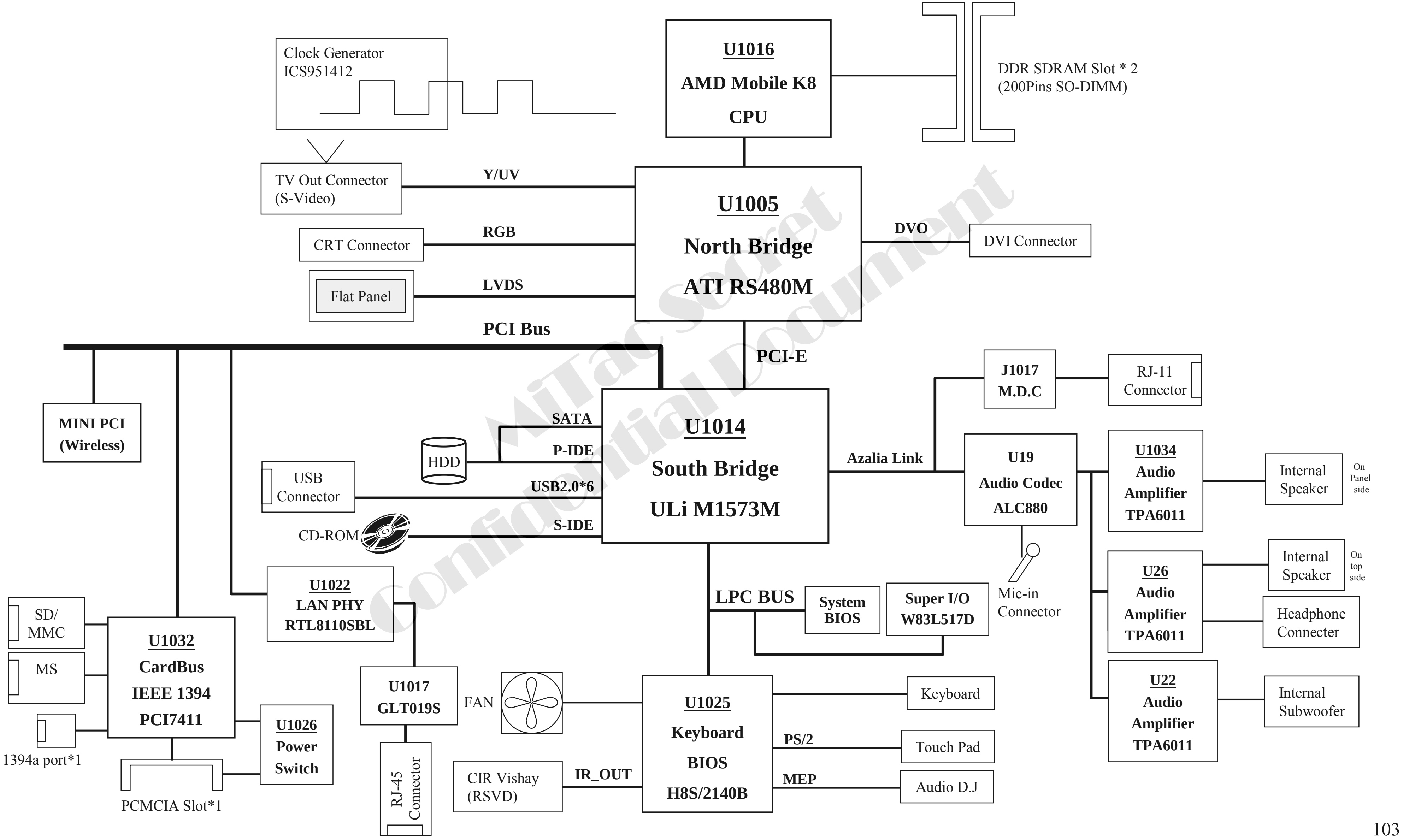
Pin Name	I/O Type	Description
RUNGPIO[3:0]/ RUNGPI[3:0]/RUNGPO[3:0]	IO	**General-Purpose Input/Output.** These pins can be configured as RUNGPI[3:0](default) or RUNGPO[3:0].
RSMGPIO[3:0]/ RSMGPO[3:0]/RSMGPI[3:0]	IO	**Resume Region General-Purpose Input/Output.** These pins can be configured as RSMGPI[3:0] or RSMGPO[3:0](default).

5.3 ULI M1573 South Bridge(9)

USB Interface

Pin Name	I/O Type	Description
USBCLK	I	**48 MHz USB Clock Input.** This clock will send to USB state machine to generate USB signals.
USBOVR#[7:6], USBOVR#[5:0]/ RSMGPI[9:4]	I	**Over Current Detect for USB Host Controller[7:0].** These pins are used to monitor the USB Power Over Current status. USBOVR#[5:0] can be configured as RSMGPI.
USB_DN0, USB_DP0	I/O	**Universal Serial Bus Port 0.** These are the serial data pair for USB Port 0.
USB_DN1, USB_DP	I/O	**Universal Serial Bus Port 1.** These are the serial data pair for USB Port 1.
USB_DN2, USB_DP2	I/O	**Universal Serial Bus Port 2.** These are the serial data pair for USB Port 2.
USB_DN3, USB_DP3	I/O	**Universal Serial Bus Port 3.** These are the serial data pair for USB Port 3.
USB_DN4, USB_DP4	I/O	**Universal Serial Bus Port 4.** These are the serial data pair for USB Port 4.
USB_DN5, USB_DP5	I/O	**Universal Serial Bus Port 5.** These are the serial data pair for USB Port 5.
USB_DN6, USB_DP6	I/O	**Universal Serial Bus Port 6.** These are the serial data pair for USB Port 6.
USB_DN7, USB_DP7	I/O	**Universal Serial Bus Port 7.** These are the serial data pair for USB Port 7.
USB_RX_TERM	I	USB PHY Receiving Termination
USB_TX_CS	I	USB PHY Transmission Current Source

6. System Block Diagram


Clock Generator
ICS951412
U1016
AMD Mobile K8
CPU
DDR SDRAM Slot * 2
(200Pins SO-DIMM)
TV Out Connector
(S-Video)
Y/UV
U1005
North Bridge
ATI RS480M
CRT Connector
RGB
DVO
DVI Connector
Flat Panel
LVDS
PCI Bus
PCI-E
J1017
M.D.C
RJ-11
Connector
MINI PCI
(Wireless)
SATA
U1014
South Bridge
ULi M1573M
HDD
P-IDE
USB
Connector
USB2.0*6
Azalia Link
U19
Audio Codec
ALC880
U1034
Audio
Amplifier
TPA6011
Internal
Speaker
On
Panel
side
CD-ROM
S-IDE
Mic-in
Connector
U26
Audio
Amplifier
TPA6011
Internal
Speaker
On
top
side
Headphone
Connecter
U1022
LAN PHY
RTL8110SBL
LPC BUS
System
BIOS
Super I/O
W83L517D
SD/
MMC
U1032
CardBus
IEEE 1394
PCI7411
MS
1394a port*1
PCMCIA Slot*1
U1026
Power
Switch
U1017
GLT019S
RJ-45
Connector
FAN
CIR Vishay
(RSVD)
IR_OUT
U1025
Keyboard
BIOS
H8S/2140B
Keyboard
PS/2
Touch Pad
MEP
Audio D.J
U22
Audio
Amplifier
TPA6011
Internal
Subwoofer

7. Maintenance Diagnostics

7.1 Introduction

Each time the computer is turned on, the system bios runs a series of internal checks on the hardware. This power-on self test (post) allows the computer to detect problems as early as the power-on stage. Error messages of post can alert you to the problems of your computer.

If an error is detected during these tests, you will see an error message displayed on the screen. If the error occurs before the display is initialized,then the screen cannot display the error message. Error codes or system beeps are used to identify a post error that occurs when the screen is not available.

The value for the diagnostic port (378H) is written at the beginning of the test. Therefore, if the test failed, the user can determine where the problem occurred by reading the last value written to port 378H by the Mini PCI debug board.

7.2 Error Codes(1)

Following is a list of error codes in sequent display on the MINI PCI debug card.

Code	POST Routine Description
10h	Some type of lone reset
11h	Turn off FAST A20 for POST
12h	Signal power on reset
13h	Initialize the chipset
14h	Search for ISA Bus VGA adapter
15h	Reset counter / Timer 1
16h	User register config through CMOS
17h	Size memory
18h	Dispatch to RAM test
19h	Check sum the ROM
1Ah	Reset PIC’s
1Bh	Initialize video adapter(s)
1Ch	Initialize video (6845Regs)
1Dh	Initialize color adapter
1Eh	Initialize monochrome adapter
1Fh	Test 8237A page registers

Code	POST Routine Description
20h	Test keyboard
21h	Test keyboard controller
22h	Check if CMOS RAM valid
23h	Test battery fail & CMOS X-SUM
24h	Test the DMA controller
25h	Initialize 8237A controller
26h	Initialize int vectors
27h	RAM quick sizing
28h	Protected mode entered safely
29h	RAM test completed
2Ah	Protected mode exit successful
2Bh	Setup shadow
2Ch	Going to initialize video
2Dh	Search for monochrome adapter
2Eh	Search for color adapter
2Fh	Sign on messages displayed

7.2 Error Codes(2)

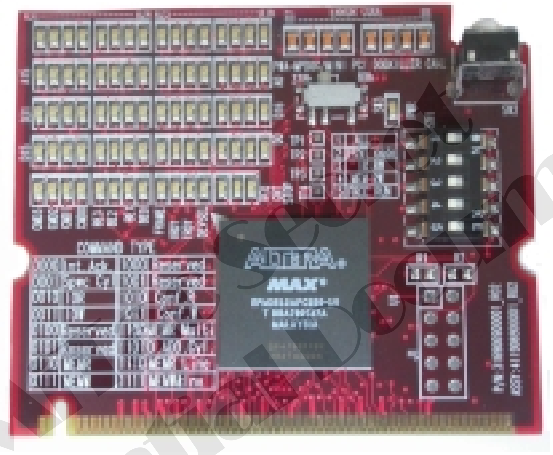
Following is a list of error codes in sequent display on the MINI PCI debug card.

Code	POST Routine Description
30h	Special init of keyboard ctlr
31h	Test if keyboard Present
32h	Test keyboard Interrupt
33h	Test keyboard command byte
34h	Test, blank and count all RAM
35h	Protected mode entered safely(2)
36h	RAM test complete
37h	Protected mode exit successful
38h	Update output port
39h	Setup cache controller
3Ah	Test if 18.2Hz periodic working
3Bh	Test for RTC ticking
3Ch	Initialize the hardware vectors
3Dh	Search and init the mouse
3Eh	Update NUMLOCK status
3Fh	Special init of COMM and LPT ports

Code	POST Routine Description
40h	Configure the COMM and LPT ports
41h	Initialize the floppies
42h	Initialize the hard disk
43h	Initialize option ROMs
44h	OEM’s init of power management
45h	Update NUMLOCK status
46h	Test for coprocessor installed
47h	OEM functions before boot
48h	Dispatch to operate system boot
49h	Jump into bootstrap code
50h	ACPI init
51h	PM init & Geyserville CPU init
52h	USB HC init

7.3 Debug Tool

7.3.1 Diagnostic Tool for Mini PCI Slot :



P/N:411906900001
Description: PWA-MPDOG;MINI PCI DOGKELLER CARD
Note: Order it from MIC/TSSC

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8. Trouble Shooting

- ☐ **8.1 No Power (*1)**
- ☐ **8.2 No Display (*2)**
- ☐ **8.3 VGA Controller Test Error LCD No Display**
- ☐ **8.4 External Monitor No Display**
- ☐ **8.5 Memory Test Error**
- ☐ **8.6 Keyboard (K/B)/Touch-Pad (T/P) Test Error**
- ☐ **8.7 Hard Disk Drive Test Error**
- ☐ **8.8 CD-ROM Drive Test Error**
- ☐ **8.9 USB Test Error**
- ☐ **8.10 Audio Test Error**
- ☐ **8.11 LAN Test Error**
- ☐ **8.12 PC Card & Card Reader Socket Test Error**
- ☐ **8.13 Mini-PCI Socket Test Error**

*1: No Power Definition

Base on ACPI Spec. We define the no power as while we press the power button, the system can't leave S5 status or none the PG signal send out from power supply.

Judge condition:

- Check whether there are any voltage feedback control to turn off the power.
- Check whether no CPU power will cause system can't leave S5 status.

If there are not any diagram match these condition, we should stop analyzing the schematic in power supply sending out the PG signal. If yes, we should add the effected analysis into no power chapter.

*2: No Display Definition

Base on the digital IC three basic working conditions: working power, reset, Clock. We define the no display as while system leave S5 status but can't get into S0 status.

Judge condition:

- Check which power will cause no display.
- Check which reset signal will cause no display.
- Check which Clock signal will cause no display

Base on these three conditions to analyze the schematic and edit the no display chapter.

Keyword:

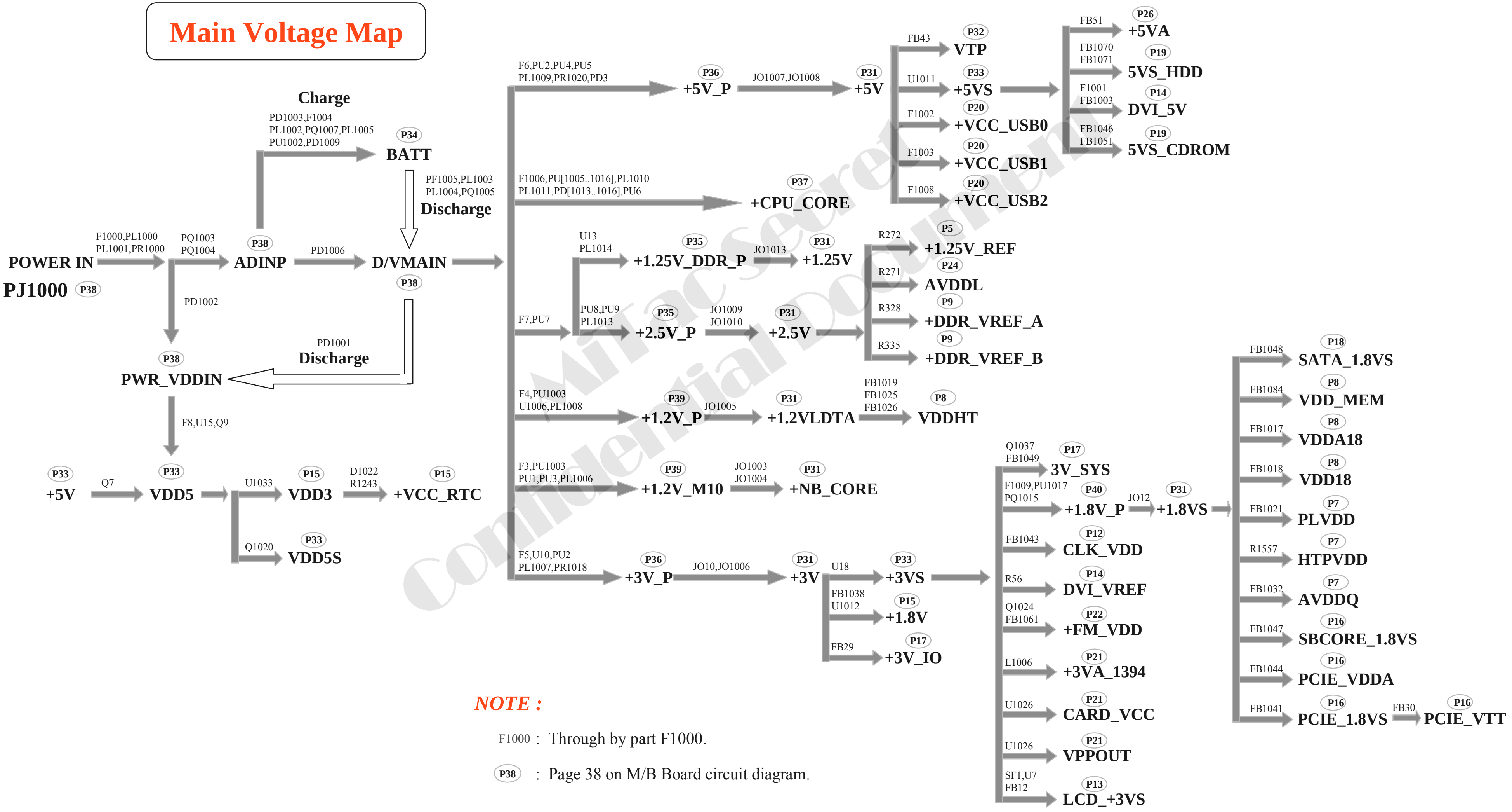
- S5: *Soft Off*
- S0: *Working*

For detail please refer the ACPI specification

8317 N/B Maintenance

8.1 No Power(1)

When the power button is pressed, nothing happens, no fan activity is heard and power indicator is not light up.


Main Voltage Map
POWER IN
PJ1000
P38
F1000,PL1000
PL1001,PR1000
PQ1003
PQ1004
P38
ADINP
PD1006
D/VMAIN
P38
Charge
PD1003,F1004
PL1002,PQ1007,PL1005
PU1002,PD1009
P34
BATT
PF1005,PL1003
PL1004,PQ1005
Discharge
PD1002
PD1001
Discharge
P38
PWR_VDDIN
F8,U15,Q9
P33
+5V
Q7
P33
VDD5
U1033
P15
VDD3
D1022
R1243
P15
+VCC_RTC
Q1020
P33
VDD5S
F6,PU2,PU4,PU5
PL1009,PR1020,PD3
P36
+5V_P
JO1007,JO1008
P31
+5V
FB43
P32
VTP
U1011
P33
+5VS
F1002
P20
+VCC_USB0
F1003
P20
+VCC_USB1
F1008
P20
+VCC_USB2
FB51
P26
+5VA
FB1070
FB1071
P19
5VS_HDD
F1001
FB1003
P14
DVI_5V
FB1046
FB1051
P19
5VS_CDROM
F1006,PU[1005..1016],PL1010
PL1011,PD[1013..1016],PU6
P37
+CPU_CORE
U13
PL1014
P35
+1.25V_DDR_P
JO1013
P31
+1.25V
R272
P5
+1.25V_REF
R271
P24
AVDDL
R328
P9
+DDR_VREF_A
R335
P9
+DDR_VREF_B
F7,PU7
PU8,PU9
PL1013
P35
+2.5V_P
JO1009
JO1010
P31
+2.5V
F4,PU1003
U1006,PL1008
P39
+1.2V_P
JO1005
P31
+1.2VLDTA
FB1019
FB1025
FB1026
P8
VDDHT
F3,PU1003
PU1,PU3,PL1006
P39
+1.2V_M10
JO1003
JO1004
P31
+NB_CORE
F5,U10,PU2
PL1007,PR1018
P36
+3V_P
JO10,JO1006
P31
+3V
U18
P33
+3VS
FB1038
U1012
P15
+1.8V
FB29
P17
+3V_IO
Q1037
FB1049
P17
3V_SYS
F1009,PU1017
PQ1015
P40
+1.8V_P
JO12
P31
+1.8VS
FB1043
P12
CLK_VDD
R56
P14
DVI_VREF
Q1024
FB1061
P22
+FM_VDD
L1006
P21
+3VA_1394
U1026
P21
CARD_VCC
U1026
P21
VPPOUT
SF1,U7
FB12
P13
LCD_+3VS
FB1048
P18
SATA_1.8VS
FB1084
P8
VDD_MEM
FB1017
P8
VDDA18
FB1018
P8
VDD18
FB1021
P7
PLVDD
R1557
P7
HTPVDD
FB1032
P7
AVDDQ
FB1047
P16
SBCORE_1.8VS
FB1044
P16
PCIE_VDDA
FB1041
P16
PCIE_1.8VS
FB30
P16
PCIE_VTT

NOTE :

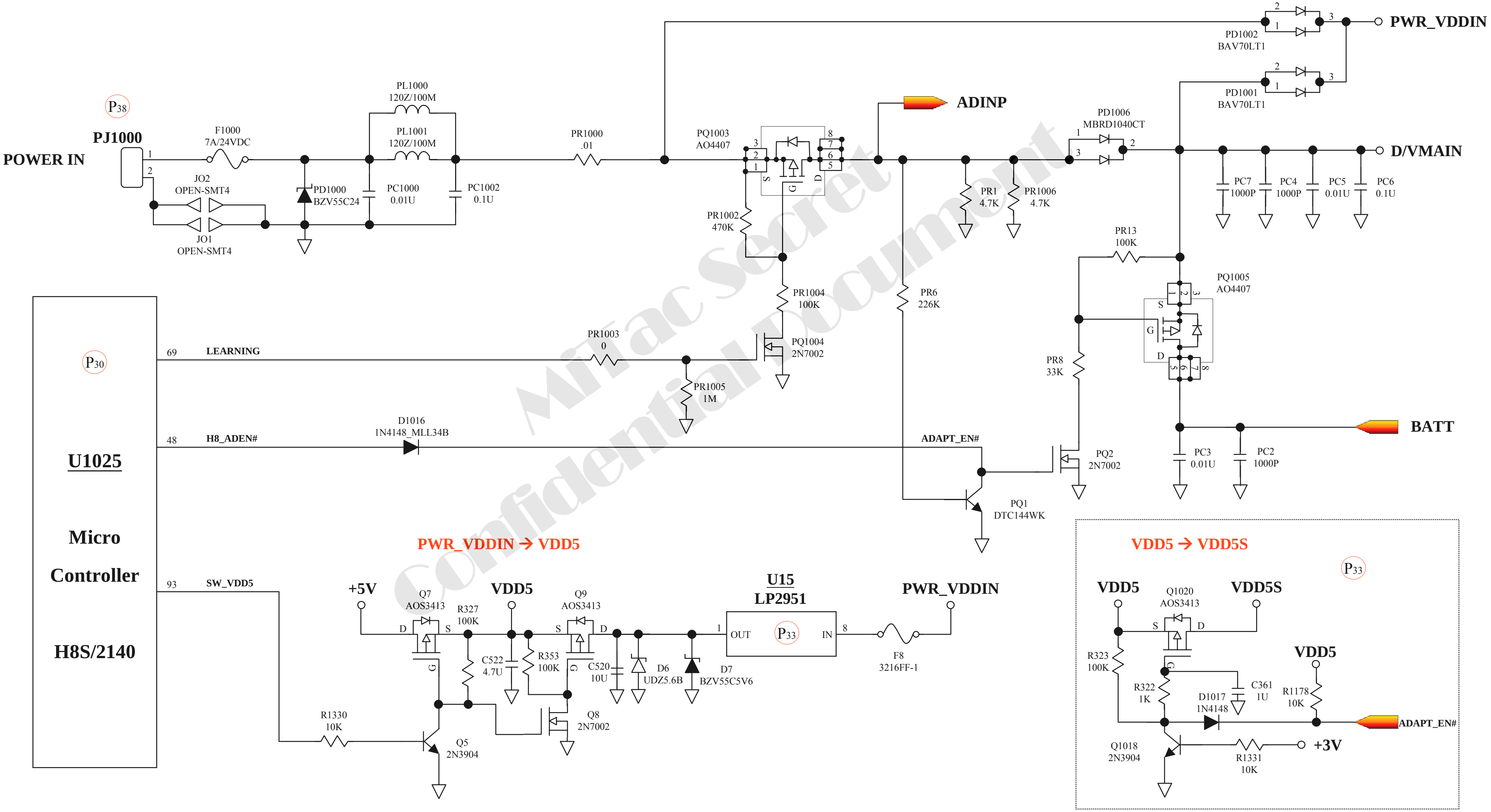
F1000 : Through by part F1000.

P38 : Page 38 on M/B Board circuit diagram.

8317 N/B Maintenance

8.1 No Power(2)

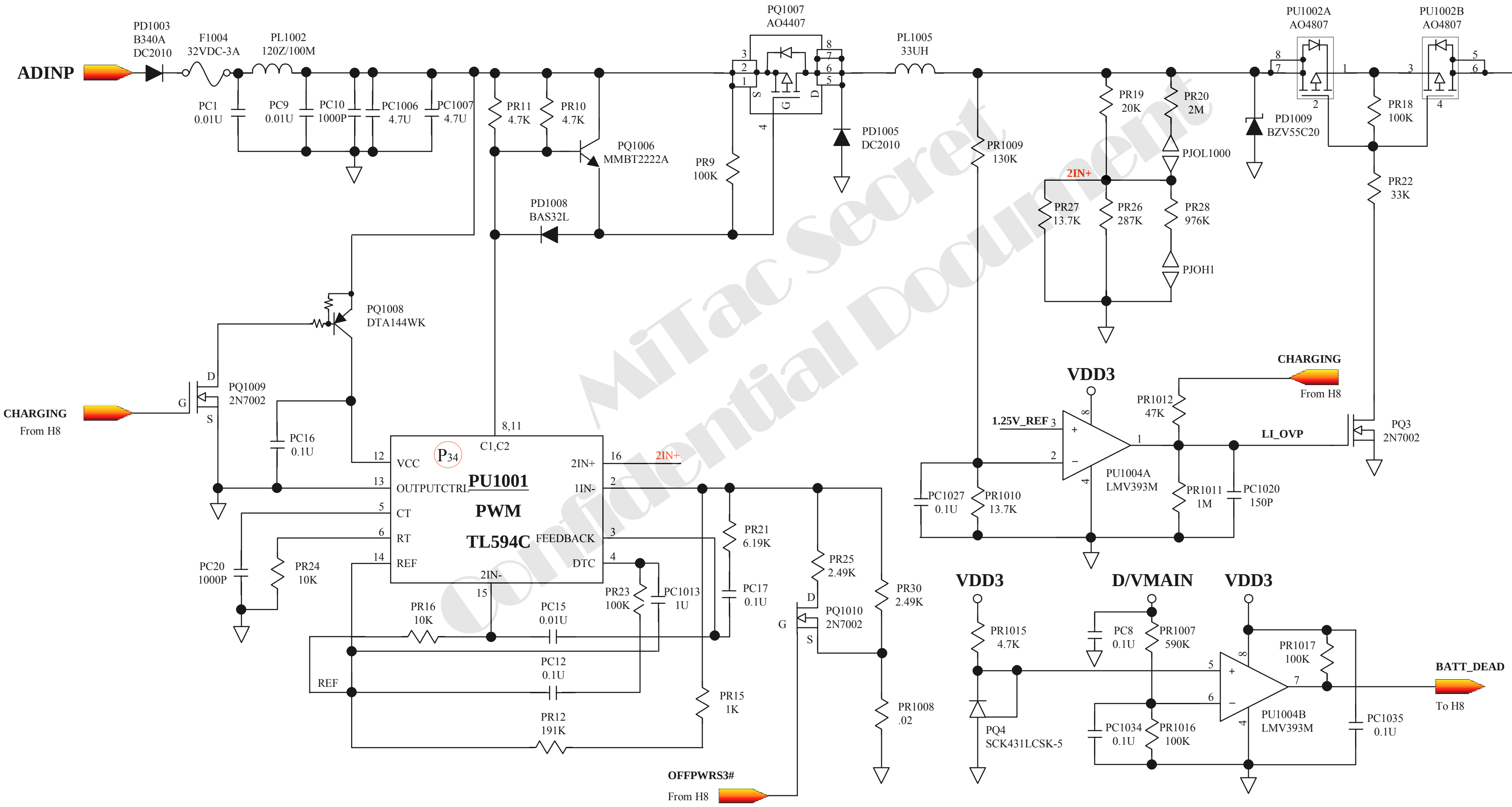
When the power button is pressed, nothing happens, no fan activity is heard and power indicator is not light up.


PWR_VDDIN
PD1002
BAV70LT1
PD1001
BAV70LT1
ADINP
D/VMAIN
BATT
P38
PJ1000
POWER IN
F1000
7A/24VDC
PL1000
120Z/100M
PL1001
120Z/100M
JO2
OPEN-SMT4
JO1
OPEN-SMT4
PD1000
BZV55C24
PC1000
0.01U
PC1002
0.1U
PR1000
.01
PQ1003
AO4407
PR1002
470K
PR1004
100K
PQ1004
2N7002
PR1003
0
PR1005
1M
PR1
4.7K
PR1006
4.7K
PR6
226K
PD1006
MBRD1040CT
PC7
1000P
PC4
1000P
PC5
0.01U
PC6
0.1U
PR13
100K
PQ1005
AO4407
PR8
33K
PQ2
2N7002
PC3
0.01U
PC2
1000P
PQ1
DTC144WK
ADAPT_EN#
P30
U1025
Micro
Controller
H8S/2140
69 LEARNING
48 H8_ADEN#
93 SW_VDD5
D1016
1N4148_MLL34B
PWR_VDDIN → VDD5
+5V
VDD5
Q7
AOS3413
R327
100K
Q9
AOS3413
C522
4.7U
R353
100K
C520
10U
D6
UDZ5.6B
D7
BZV55C5V6
U15
LP2951
OUT
IN
P33
PWR_VDDIN
F8
3216FF-1
Q8
2N7002
R1330
10K
Q5
2N3904
VDD5 → VDD5S
P33
VDD5
Q1020
AOS3413
VDD5S
R323
100K
R322
1K
D1017
1N4148
C361
1U
VDD5
R1178
10K
ADAPT_EN#
Q1018
2N3904
R1331
10K
+3V

8317 N/B Maintenance

8.1 No Power(3)

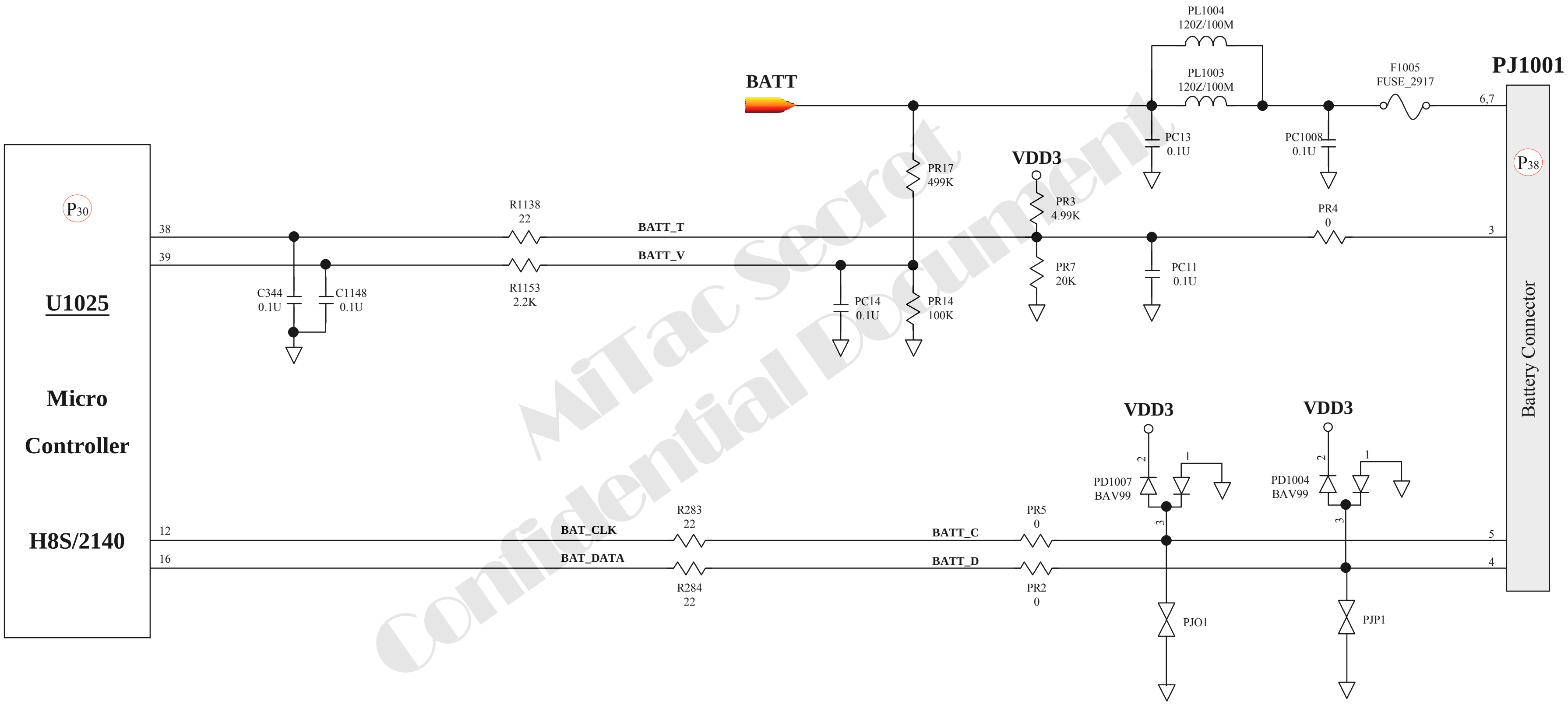
When the battery is installed but the battery status indicate LED display abnormal.


ADINP
PD1003
B340A
DC2010
F1004
32VDC-3A
PL1002
120Z/100M
PC1
0.01U
PC9
0.01U
PC10
1000P
PC1006
4.7U
PC1007
4.7U
PR11
4.7K
PR10
4.7K
PQ1006
MMBT2222A
PD1008
BAS32L
PQ1007
AO4407
PR9
100K
PD1005
DC2010
PL1005
33UH
PR1009
130K
2IN+
PR19
20K
PR20
2M
PJOL1000
PR27
13.7K
PR26
287K
PR28
976K
PJOH1
PU1002A
AO4807
PD1009
BZV55C20
PU1002B
AO4807
PR18
100K
PR22
33K
BATT
PQ1008
DTA144WK
CHARGING
From H8
PQ1009
2N7002
PC16
0.1U
8,11
C1,C2
P34
PU1001
PWM
TL594C
VCC
OUTPUTCTRL
CT
RT
REF
2IN+
1IN-
FEEDBACK
DTC
2IN-
PC20
1000P
PR24
10K
PR16
10K
PC15
0.01U
PR23
100K
PC1013
1U
PC17
0.1U
PR21
6.19K
PR25
2.49K
PR30
2.49K
PQ1010
2N7002
PC12
0.1U
REF
PR12
191K
PR15
1K
PR1008
.02
OFFPWRS3#
From H8
VDD3
1.25V_REF
PU1004A
LMV393M
PR1012
47K
CHARGING
From H8
LI_OVP
PQ3
2N7002
PC1027
0.1U
PR1010
13.7K
PR1011
1M
PC1020
150P
VDD3
D/VMAIN
VDD3
PR1015
4.7K
PQ4
SCK431LCSK-5
PC8
0.1U
PR1007
590K
PC1034
0.1U
PR1016
100K
PU1004B
LMV393M
PR1017
100K
PC1035
0.1U
BATT_DEAD
To H8

8317 N/B Maintenance

8.1 No Power(4)

When the battery is installed but the battery status indicate LED display abnormal.

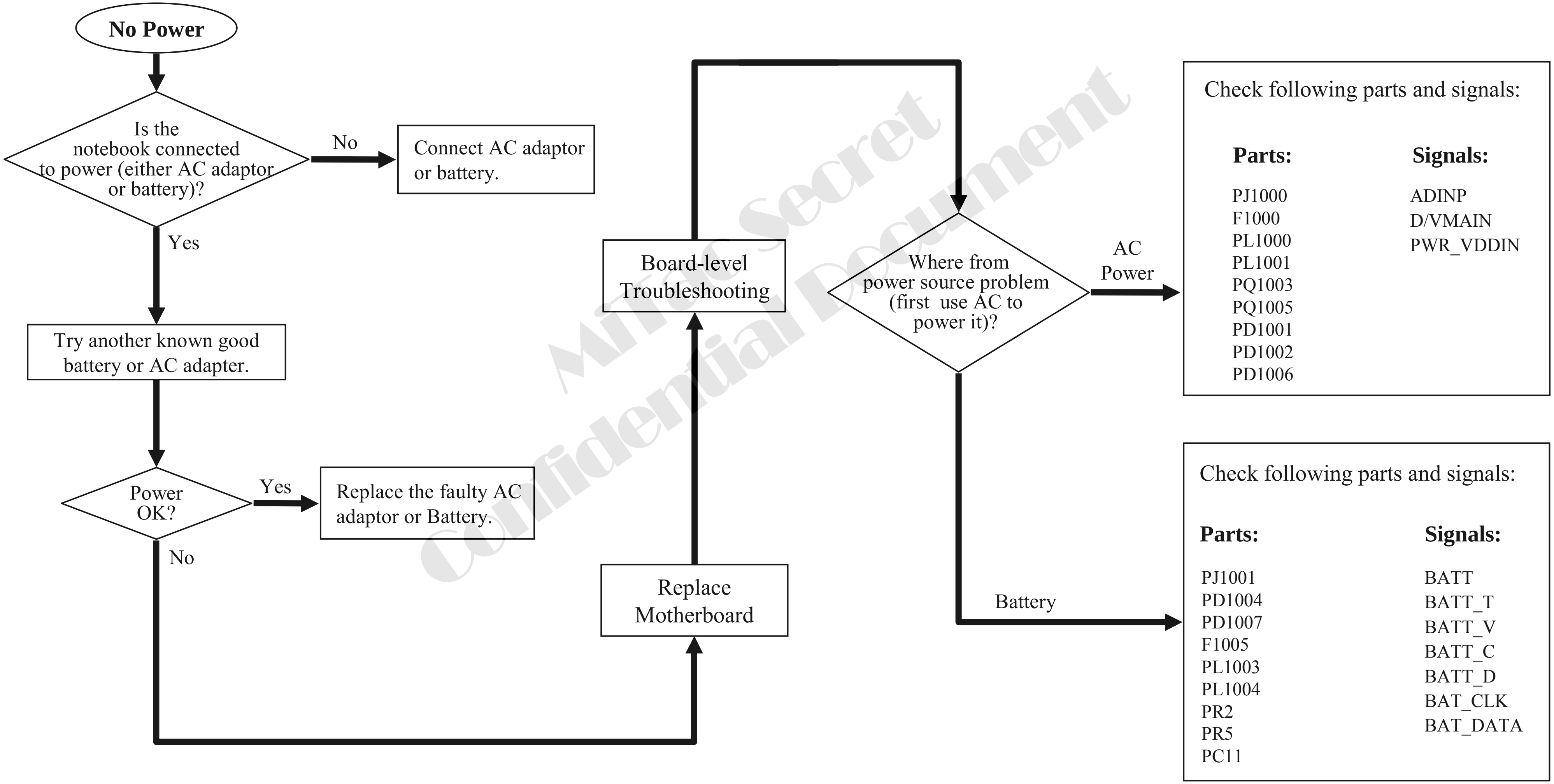


PL1004
120Z/100M
PL1003
120Z/100M
F1005
FUSE_2917
PJ1001
BATT
6,7
PC13
0.1U
PC1008
0.1U
P38
VDD3
PR17
499K
PR3
4.99K
PR4
0
3
P30
R1138
22
38
BATT_T
39
BATT_V
R1153
2.2K
PR7
20K
PC11
0.1U
U1025
C344
0.1U
C1148
0.1U
PC14
0.1U
PR14
100K
Battery Connector
Micro
Controller
VDD3
VDD3
2
1
2
1
PD1007
BAV99
PD1004
BAV99
3
3
H8S/2140
12
BAT_CLK
R283
22
BATT_C
PR5
0
5
16
BAT_DATA
BATT_D
4
R284
22
PR2
0
PJO1
PJP1

8317 N/B Maintenance

8.1 No Power(5)

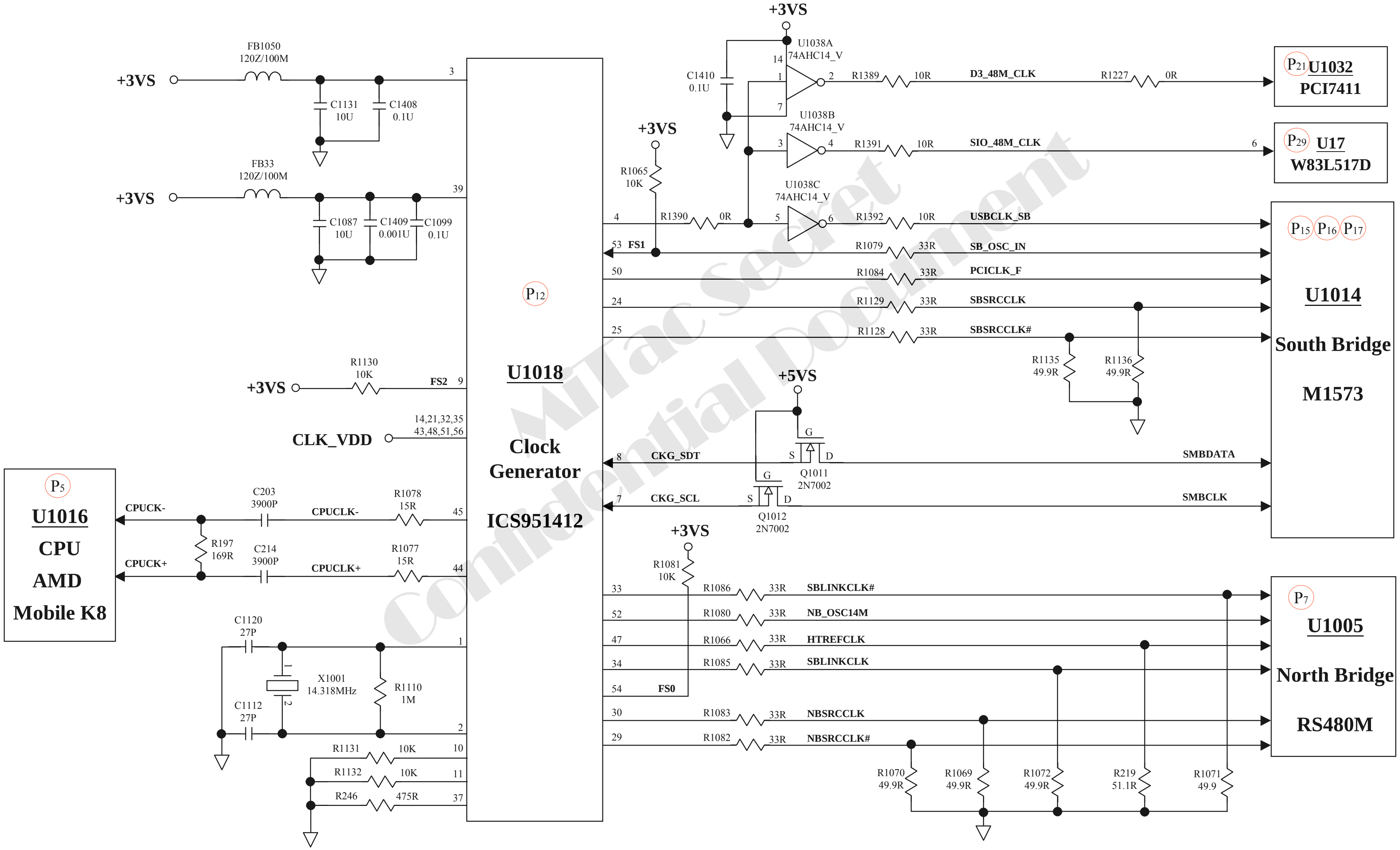
When the power button is pressed, nothing happens, no fan activity is heard and power indicator is not light up.


No Power
Is the notebook connected to power (either AC adaptor or battery)?
No
Connect AC adaptor or battery.
Yes
Try another known good battery or AC adapter.
Power OK?
Yes
Replace the faulty AC adaptor or Battery.
No
Replace Motherboard
Board-level Troubleshooting
Where from power source problem (first use AC to power it)?
AC Power
Check following parts and signals:
Parts:
PJ1000
F1000
PL1000
PL1001
PQ1003
PQ1005
PD1001
PD1002
PD1006
Signals:
ADINP
D/VMAIN
PWR_VDDIN
Battery
Check following parts and signals:
Parts:
PJ1001
PD1004
PD1007
F1005
PL1003
PL1004
PR2
PR5
PC11
Signals:
BATT
BATT_T
BATT_V
BATT_C
BATT_D
BAT_CLK
BAT_DATA

8317 N/B Maintenance

8.2 No Display(1)

****** System Clock Check ******



+3VS
FB1050
120Z/100M
C1131
10U
C1408
0.1U
FB33
120Z/100M
C1087
10U
C1409
0.001U
C1099
0.1U
U1038A
74AHC14_V
C1410
0.1U
U1038B
74AHC14_V
U1038C
74AHC14_V
R1065
10K
R1390
0R
FS1
R1389
10R
D3_48M_CLK
R1227
0R
R1391
10R
SIO_48M_CLK
R1392
10R
USBCLK_SB
R1079
33R
SB_OSC_IN
R1084
33R
PCICLK_F
R1129
33R
SBSRCCLK
R1128
33R
SBSRCCLK#
R1135
49.9R
R1136
49.9R
P21 U1032
PCI7411
P29 U17
W83L517D
P15 P16 P17
U1014
South Bridge
M1573
P12
U1018
Clock
Generator
ICS951412
R1130
10K
FS2
CLK_VDD
14,21,32,35
43,48,51,56
+5VS
CKG_SDT
Q1011
2N7002
SMBDATA
CKG_SCL
Q1012
2N7002
SMBCLK
P5
U1016
CPU
AMD
Mobile K8
CPUCK-
CPUCK+
C203
3900P
C214
3900P
R197
169R
CPUCLK-
CPUCLK+
R1078
15R
R1077
15R
C1120
27P
C1112
27P
X1001
14.318MHz
R1110
1M
R1131
10K
R1132
10K
R246
475R
R1081
10K
R1086
33R
SBLINKCLK#
R1080
33R
NB_OSC14M
R1066
33R
HTREFCLK
R1085
33R
SBLINKCLK
FS0
R1083
33R
NBSRCCLK
R1082
33R
NBSRCCLK#
R1070
49.9R
R1069
49.9R
R1072
49.9R
R219
51.1R
R1071
49.9
P7
U1005
North Bridge
RS480M

8317 N/B Maintenance

8.2 No Display(2)

****** Power Good & Reset Circuit Check ******

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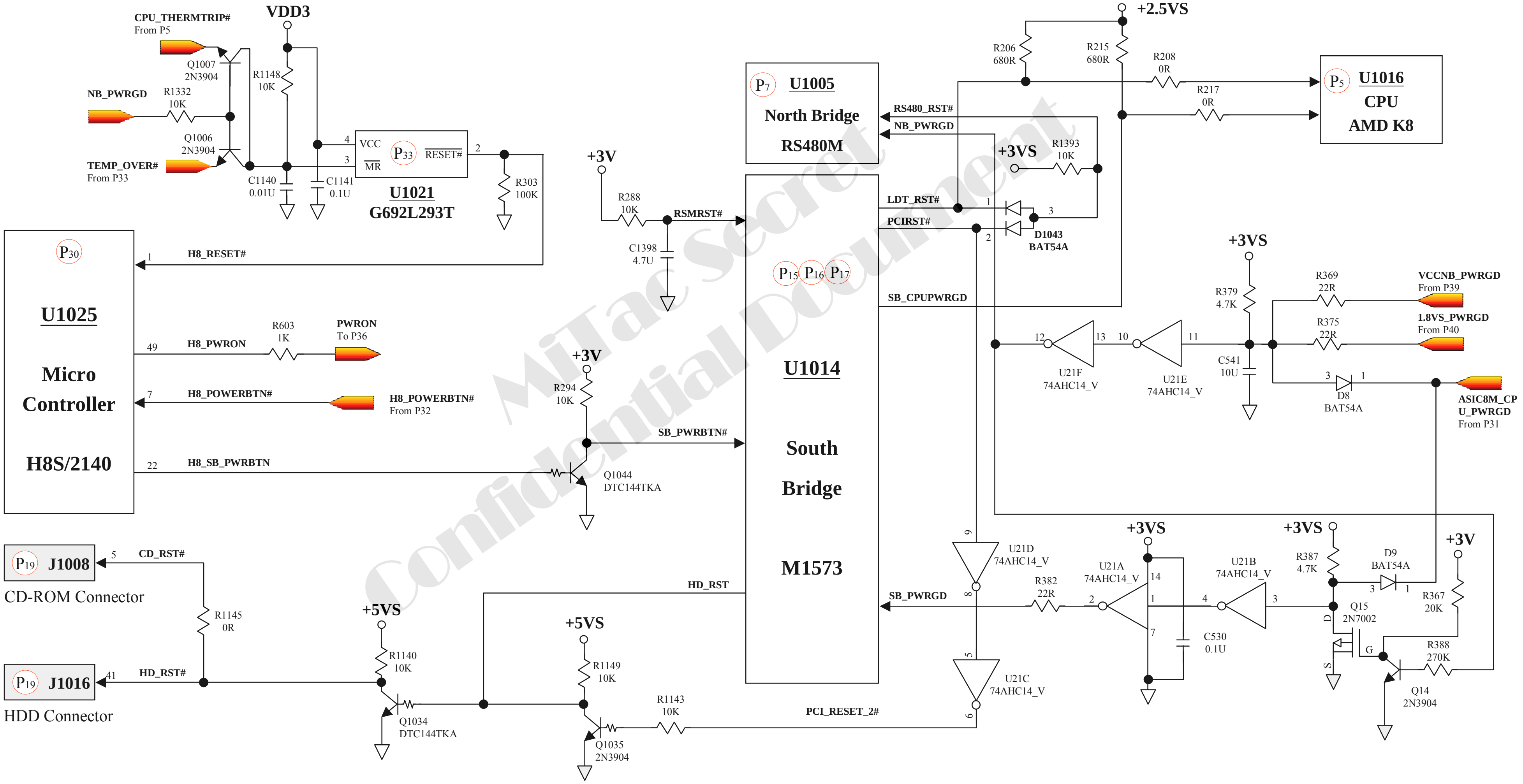
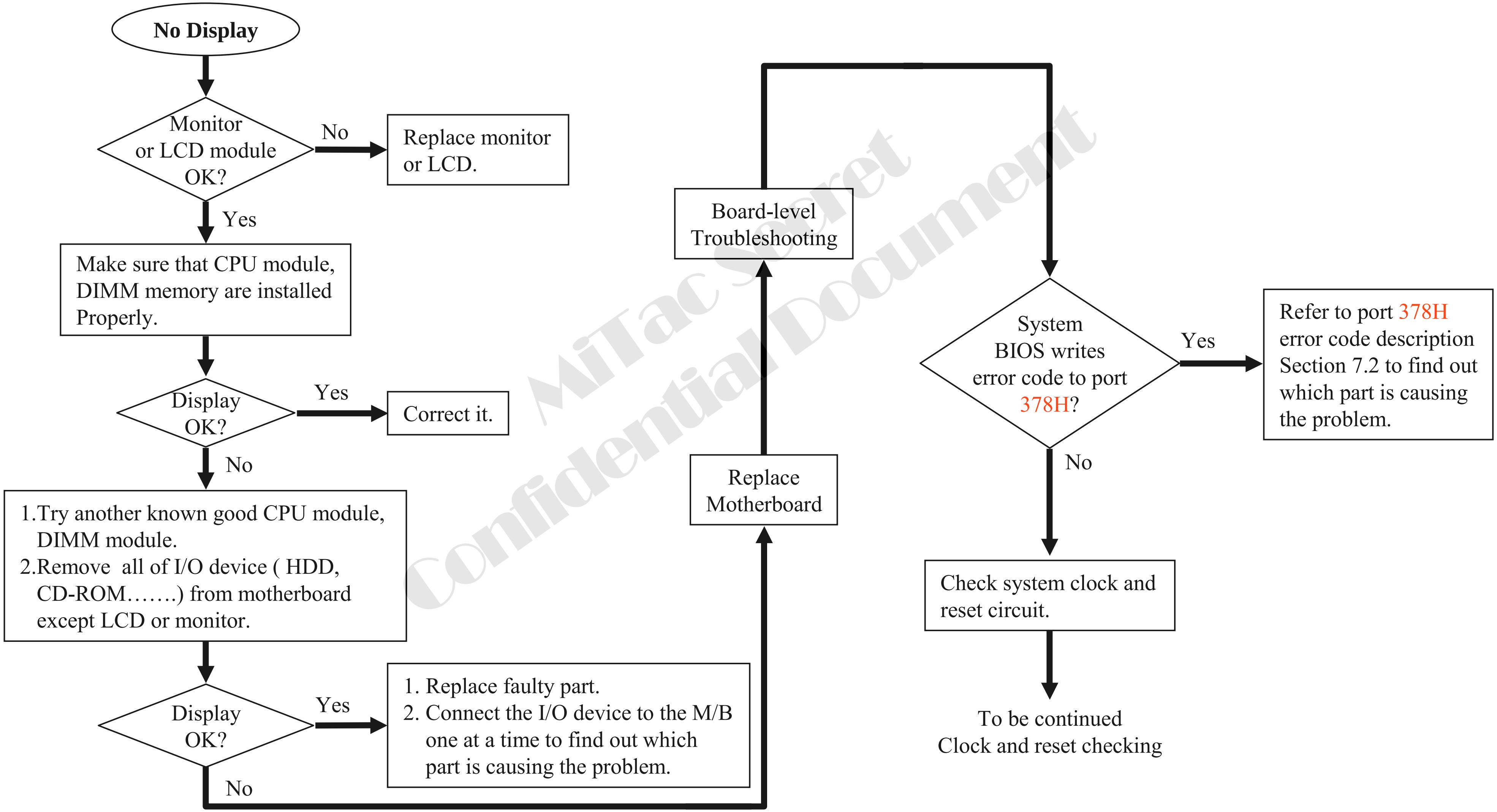

CPU_THERMTRIP#
From P5
VDD3
Q1007
2N3904
R1148
10K
NB_PWRGD
R1332
10K
Q1006
2N3904
TEMP_OVER#
From P33
C1140
0.01U
C1141
0.1U
VCC
MR
P33
RESET#
U1021
G692L293T
R303
100K
P30
U1025
Micro
Controller
H8S/2140
1
H8_RESET#
49
H8_PWRON
R603
1K
PWRON
To P36
7
H8_POWERBTN#
H8_POWERBTN#
From P32
22
H8_SB_PWRBTN
+3V
R294
10K
SB_PWRBTN#
Q1044
DTC144TKA
+3V
R288
10K
RSMRST#
C1398
4.7U
P7
U1005
North Bridge
RS480M
RS480_RST#
NB_PWRGD
LDT_RST#
PCIRST#
SB_CPUPWRGD
P15 P16 P17
U1014
South
Bridge
M1573
HD_RST
SB_PWRGD
PCI_RESET_2#
+2.5VS
R206
680R
R215
680R
R208
0R
R217
0R
P5
U1016
CPU
AMD K8
+3VS
R1393
10K
D1043
BAT54A
+3VS
R379
4.7K
C541
10U
U21F
74AHC14_V
U21E
74AHC14_V
R369
22R
VCCNB_PWRGD
From P39
R375
22R
1.8VS_PWRGD
From P40
D8
BAT54A
ASIC8M_CPU_PWRGD
From P31
U21D
74AHC14_V
U21C
74AHC14_V
R382
22R
+3VS
U21A
74AHC14_V
C530
0.1U
U21B
74AHC14_V
+3VS
R387
4.7K
D9
BAT54A
+3V
R367
20K
Q15
2N7002
R388
270K
Q14
2N3904
P19 J1008
CD-ROM Connector
CD_RST#
R1145
0R
P19 J1016
HDD Connector
HD_RST#
+5VS
R1140
10K
Q1034
DTC144TKA
+5VS
R1149
10K
R1143
10K
Q1035
2N3904

8.2 No Display(3)

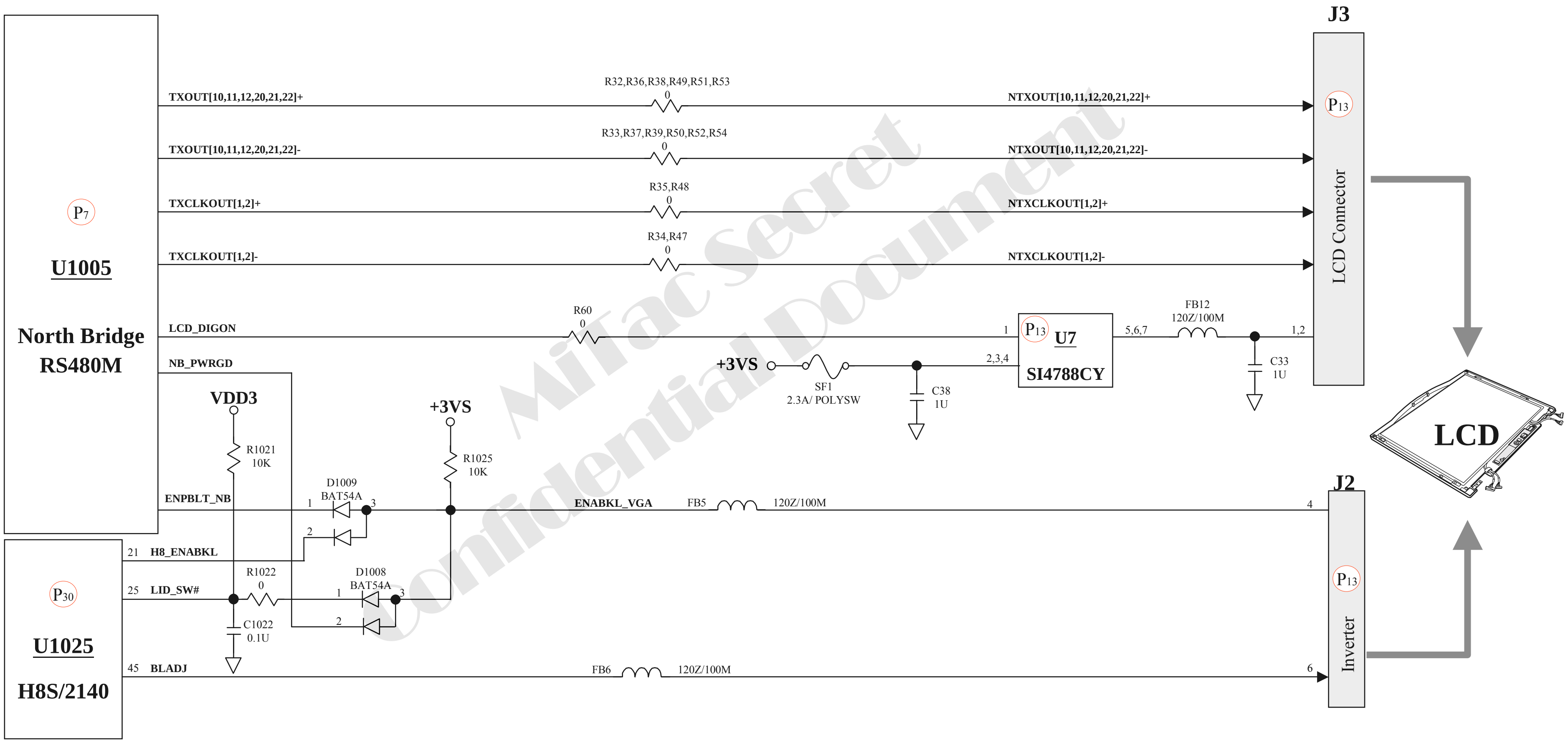
There is no display on both LCD and VGA monitor after power on although the LCD and monitor is known-good.


No Display
Monitor or LCD module OK?
No
Replace monitor or LCD.
Yes
Make sure that CPU module, DIMM memory are installed Properly.
Display OK?
Yes
Correct it.
No
1.Try another known good CPU module, DIMM module.
2.Remove all of I/O device (HDD, CD-ROM…….) from motherboard except LCD or monitor.
Display OK?
Yes
1. Replace faulty part.
2. Connect the I/O device to the M/B one at a time to find out which part is causing the problem.
No
Replace Motherboard
Board-level Troubleshooting
System BIOS writes error code to port 378H?
Yes
Refer to port 378H error code description Section 7.2 to find out which part is causing the problem.
No
Check system clock and reset circuit.
To be continued
Clock and reset checking

8317 N/B Maintenance

8.3 VGA Controller Test Error LCD No Display(1)

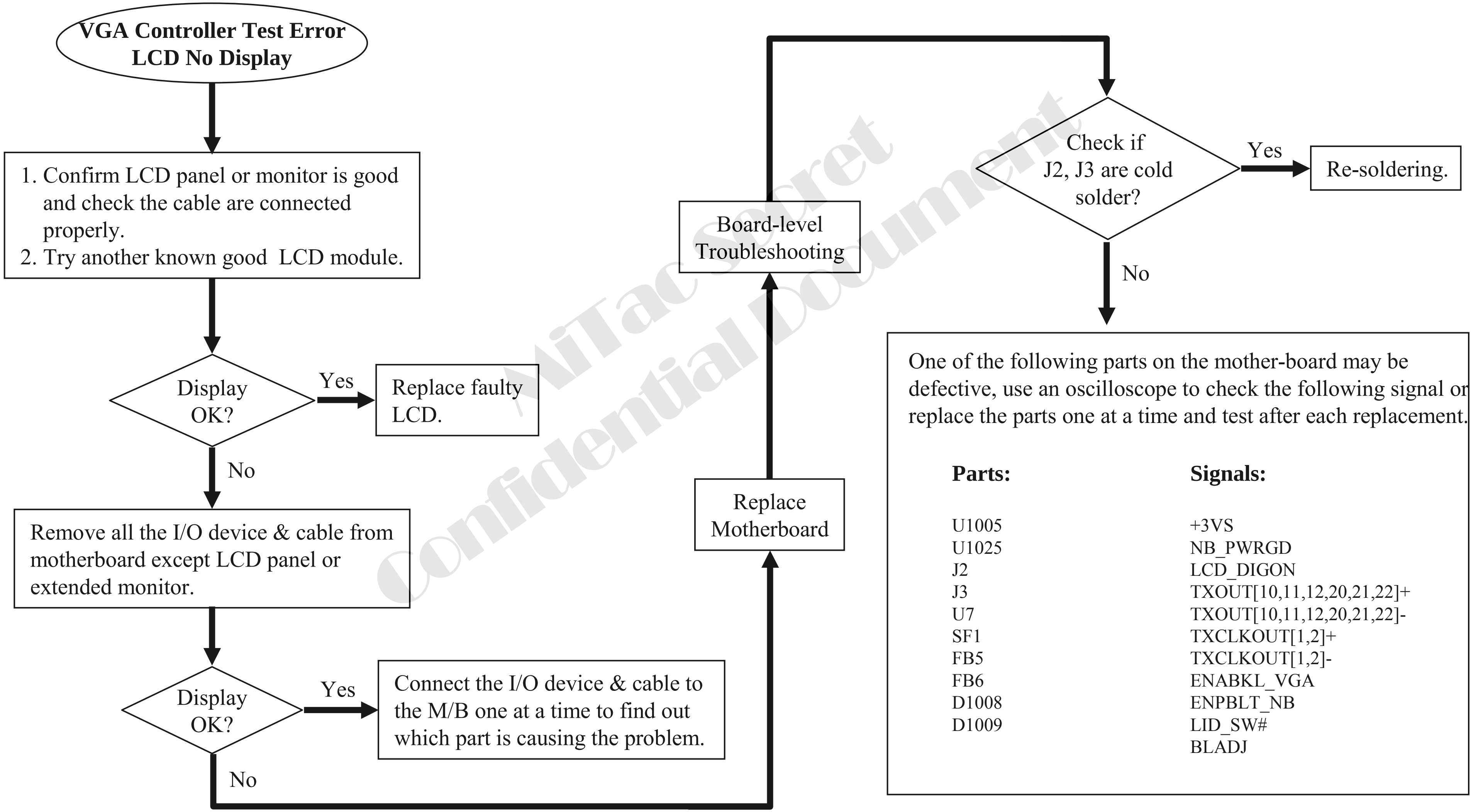
There is no display or picture abnormal on LCD although power-on-self-test is passed.



J3
P7
U1005
North Bridge
RS480M
TXOUT[10,11,12,20,21,22]+
R32,R36,R38,R49,R51,R53
0
NTXOUT[10,11,12,20,21,22]+
P13
TXOUT[10,11,12,20,21,22]-
R33,R37,R39,R50,R52,R54
0
NTXOUT[10,11,12,20,21,22]-
TXCLKOUT[1,2]+
R35,R48
0
NTXCLKOUT[1,2]+
TXCLKOUT[1,2]-
R34,R47
0
NTXCLKOUT[1,2]-
LCD Connector
LCD_DIGON
R60
0
1
P13
U7
SI4788CY
5,6,7
FB12
120Z/100M
1,2
C33
1U
NB_PWRGD
+3VS
SF1
2.3A/ POLYSW
2,3,4
C38
1U
VDD3
R1021
10K
+3VS
R1025
10K
LCD
ENPBLT_NB
D1009
BAT54A
1
3
2
ENABKL_VGA
FB5
120Z/100M
4
J2
P30
U1025
H8S/2140
21
H8_ENABKL
25
LID_SW#
R1022
0
D1008
BAT54A
1
3
2
C1022
0.1U
45
BLADJ
FB6
120Z/100M
6
P13
Inverter

8.3 VGA Controller Test Error LCD No Display(2)

There is no display or picture abnormal on LCD although power-on-self-test is passed.

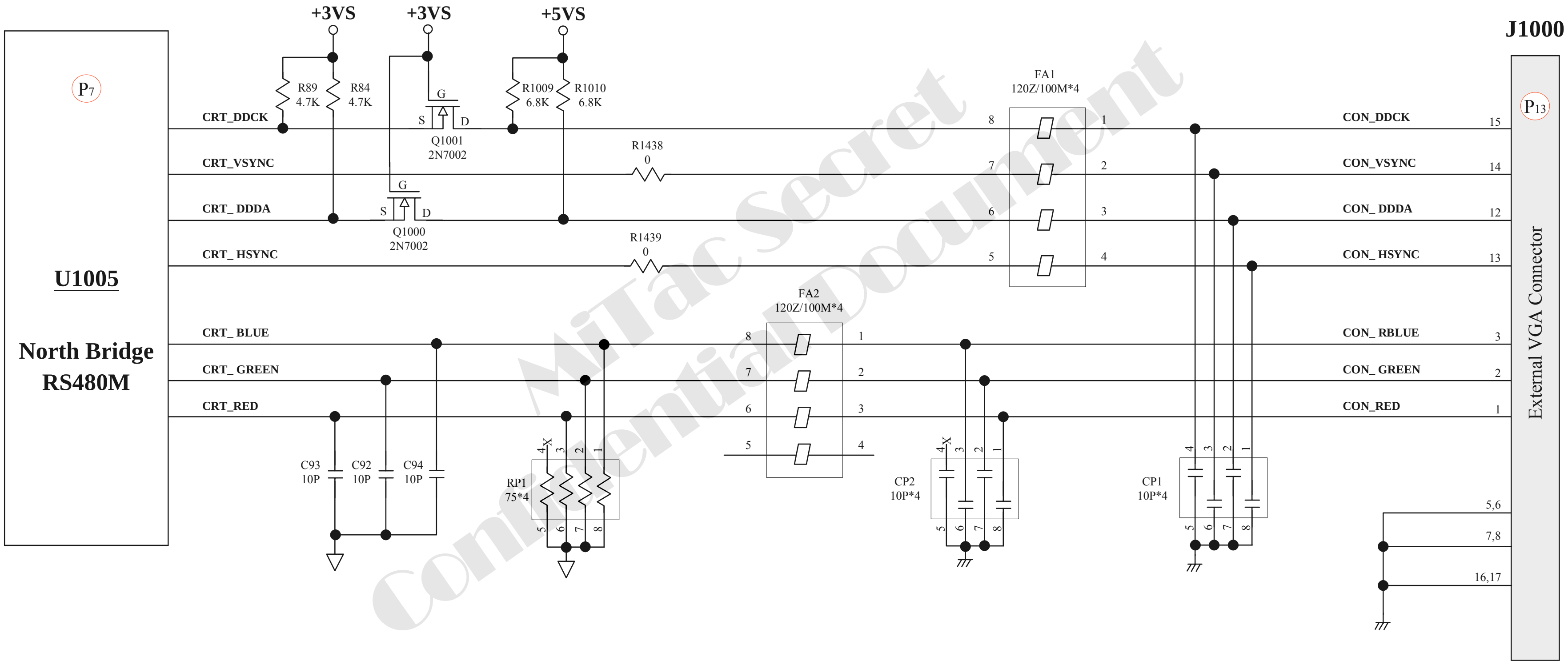

VGA Controller Test Error
LCD No Display
1. Confirm LCD panel or monitor is good and check the cable are connected properly.
2. Try another known good LCD module.
Display OK?
Yes
Replace faulty LCD.
No
Remove all the I/O device & cable from motherboard except LCD panel or extended monitor.
Display OK?
Yes
Connect the I/O device & cable to the M/B one at a time to find out which part is causing the problem.
No
Replace Motherboard
Board-level Troubleshooting
Check if J2, J3 are cold solder?
Yes
Re-soldering.
No

One of the following parts on the mother-board may be defective, use an oscilloscope to check the following signal or replace the parts one at a time and test after each replacement.

Parts:	**Signals:**
U1005	+3VS
U1025	NB_PWRGD
J2	LCD_DIGON
J3	TXOUT[10,11,12,20,21,22]+
U7	TXOUT[10,11,12,20,21,22]-
SF1	TXCLKOUT[1,2]+
FB5	TXCLKOUT[1,2]-
FB6	ENABKL_VGA
D1008	ENPBLT_NB
D1009	LID_SW#
	BLADJ

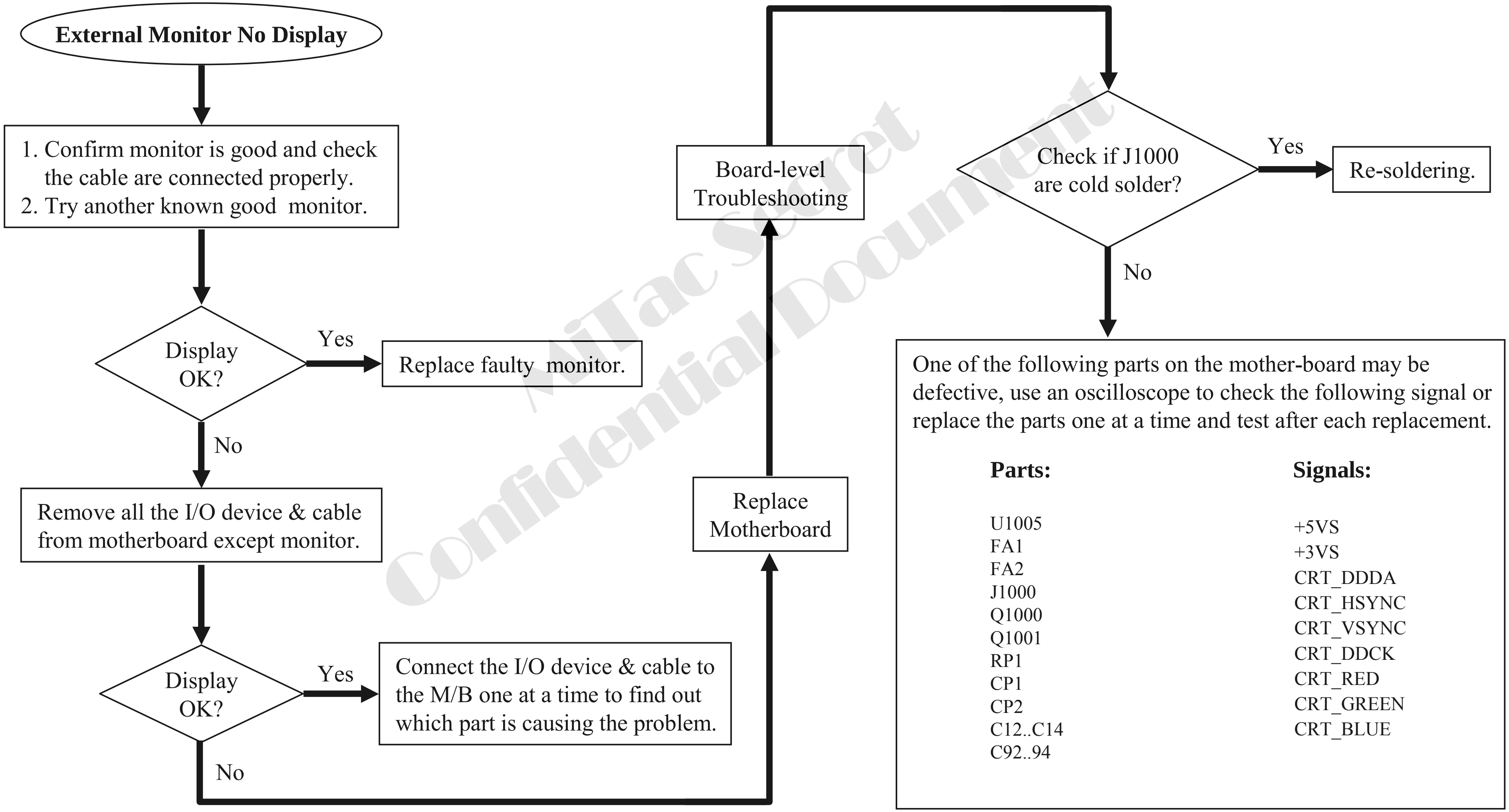
8.4 External Monitor No Display(1)

There is no display or picture abnormal on CRT monitor, but it is OK for LCD.


+3VS
+3VS
+5VS
J1000
P7
U1005
North Bridge
RS480M
R89
4.7K
R84
4.7K
G
S
D
Q1001
2N7002
R1009
6.8K
R1010
6.8K
Q1000
2N7002
R1438
0
R1439
0
FA1
120Z/100M*4
FA2
120Z/100M*4
CRT_DDCK
CRT_VSYNC
CRT_ DDDA
CRT_ HSYNC
CRT_ BLUE
CRT_ GREEN
CRT_RED
C93
10P
C92
10P
C94
10P
RP1
75*4
CP2
10P*4
CP1
10P*4
CON_DDCK
CON_VSYNC
CON_ DDDA
CON_ HSYNC
CON_ RBLUE
CON_ GREEN
CON_RED
15
14
12
13
3
2
1
5,6
7,8
16,17
P13
External VGA Connector

8.4 External Monitor No Display(2)

There is no display or picture abnormal on CRT monitor, but it is OK for LCD.



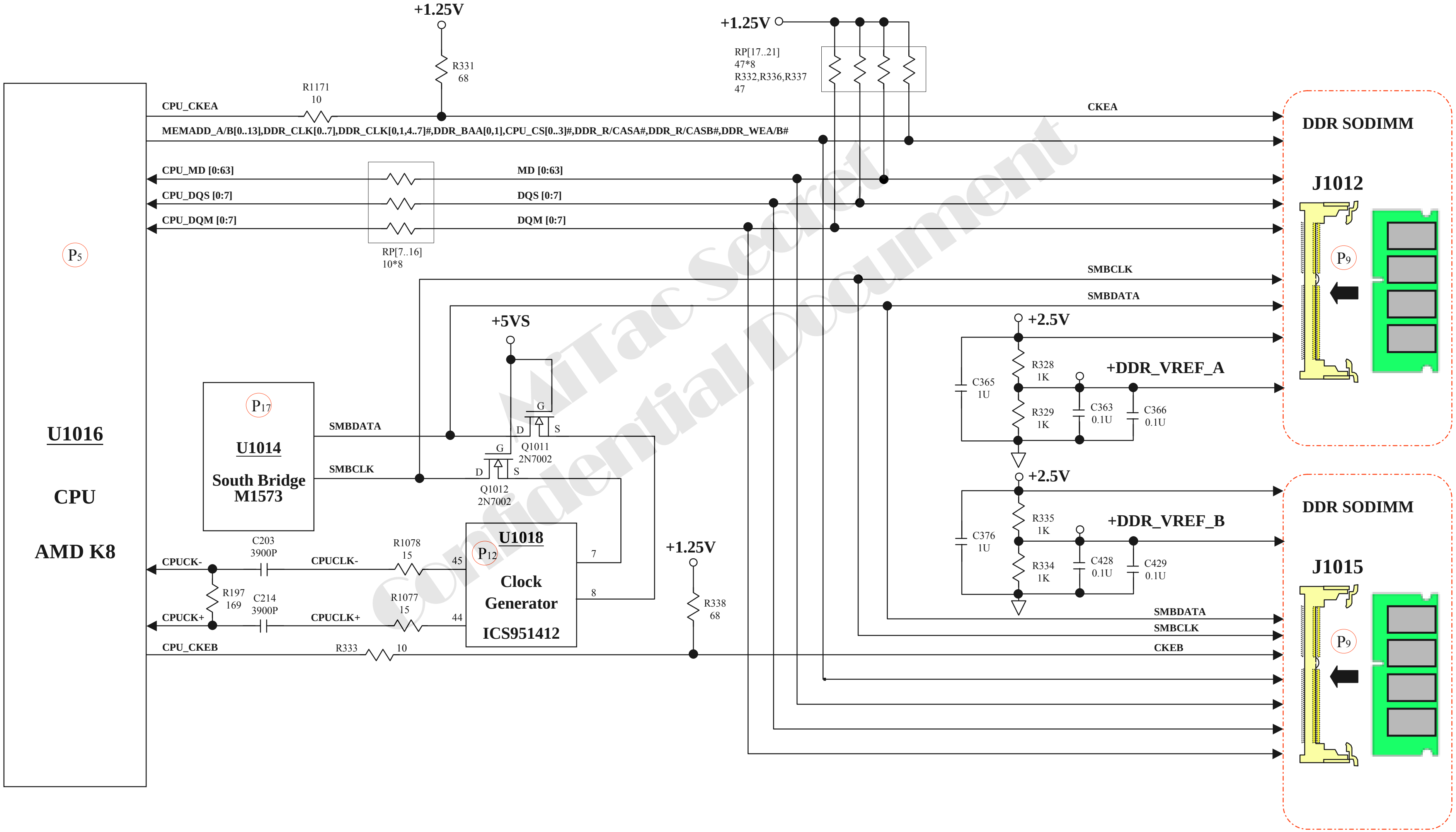
External Monitor No Display
1. Confirm monitor is good and check the cable are connected properly.
2. Try another known good monitor.
Display OK?
Yes
Replace faulty monitor.
No
Remove all the I/O device & cable from motherboard except monitor.
Display OK?
Yes
Connect the I/O device & cable to the M/B one at a time to find out which part is causing the problem.
No
Replace Motherboard
Board-level Troubleshooting
Check if J1000 are cold solder?
Yes
Re-soldering.
No

One of the following parts on the mother-board may be defective, use an oscilloscope to check the following signal or replace the parts one at a time and test after each replacement.

Parts:	**Signals:**
U1005	+5VS
FA1	+3VS
FA2	CRT_DDDA
J1000	CRT_HSYNC
Q1000	CRT_VSYNC
Q1001	CRT_DDCK
RP1	CRT_RED
CP1	CRT_GREEN
CP2	CRT_BLUE
C12..C14	
C92..94	

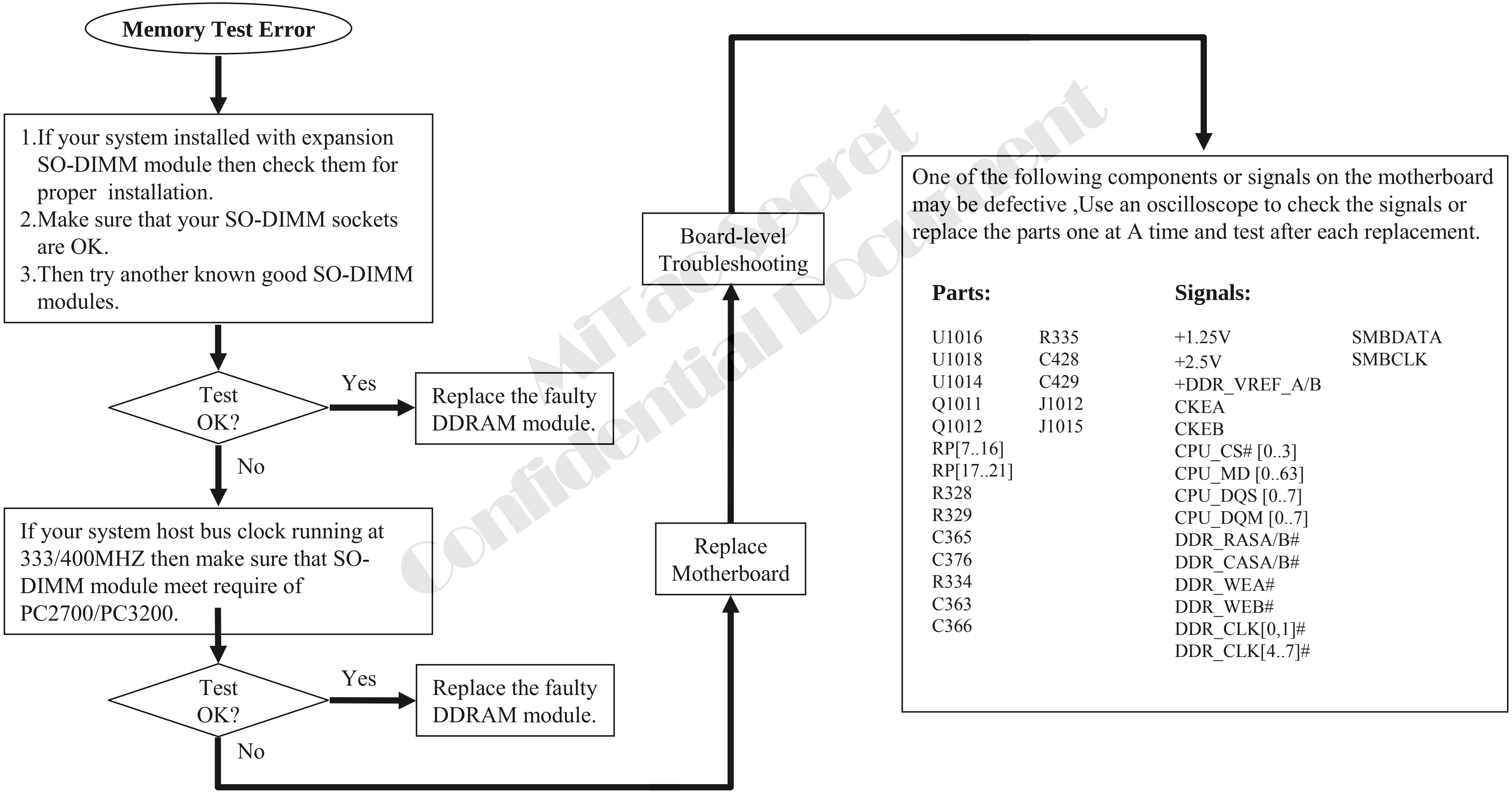
8.5 Memory Test Error(1)

Extend DDR SODIMM is Test Error or system hangs up.


+1.25V
R331
68
+1.25V
RP[17..21]
47*8
R332,R336,R337
47
R1171
10
CPU_CKEA
CKEA
MEMADD_A/B[0..13],DDR_CLK[0..7],DDR_CLK[0,1,4..7]#,DDR_BAA[0,1],CPU_CS[0..3]#,DDR_R/CASA#,DDR_R/CASB#,DDR_WEA/B#
CPU_MD [0:63]
MD [0:63]
CPU_DQS [0:7]
DQS [0:7]
CPU_DQM [0:7]
DQM [0:7]
RP[7..16]
10*8
DDR SODIMM
J1012
P9
P5
SMBCLK
SMBDATA
+5VS
+2.5V
R328
1K
+DDR_VREF_A
C365
1U
R329
1K
C363
0.1U
C366
0.1U
P17
U1014
South Bridge
M1573
SMBDATA
SMBCLK
G
D
S
Q1011
2N7002
G
D
S
Q1012
2N7002
+2.5V
R335
1K
+DDR_VREF_B
C376
1U
R334
1K
C428
0.1U
C429
0.1U
DDR SODIMM
J1015
P9
U1016
CPU
AMD K8
C203
3900P
CPUCK-
CPUCLK-
R1078
15
45
U1018
P12
Clock
Generator
ICS951412
7
8
+1.25V
R197
169
C214
3900P
CPUCK+
CPUCLK+
R1077
15
44
R338
68
SMBDATA
SMBCLK
CKEB
CPU_CKEB
R333
10

8.5 Memory Test Error(2)

Extend DDRAM is Test Error or system hangs up.


Memory Test Error
Test OK?
Yes
No
Replace the faulty DDRAM module.
Test OK?
Yes
No
Replace the faulty DDRAM module.
Replace Motherboard
Board-level Troubleshooting

1.If your system installed with expansion SO-DIMM module then check them for proper installation.
2.Make sure that your SO-DIMM sockets are OK.
3.Then try another known good SO-DIMM modules.

If your system host bus clock running at 333/400MHZ then make sure that SO-DIMM module meet require of PC2700/PC3200.

One of the following components or signals on the motherboard may be defective ,Use an oscilloscope to check the signals or replace the parts one at A time and test after each replacement.

Parts:

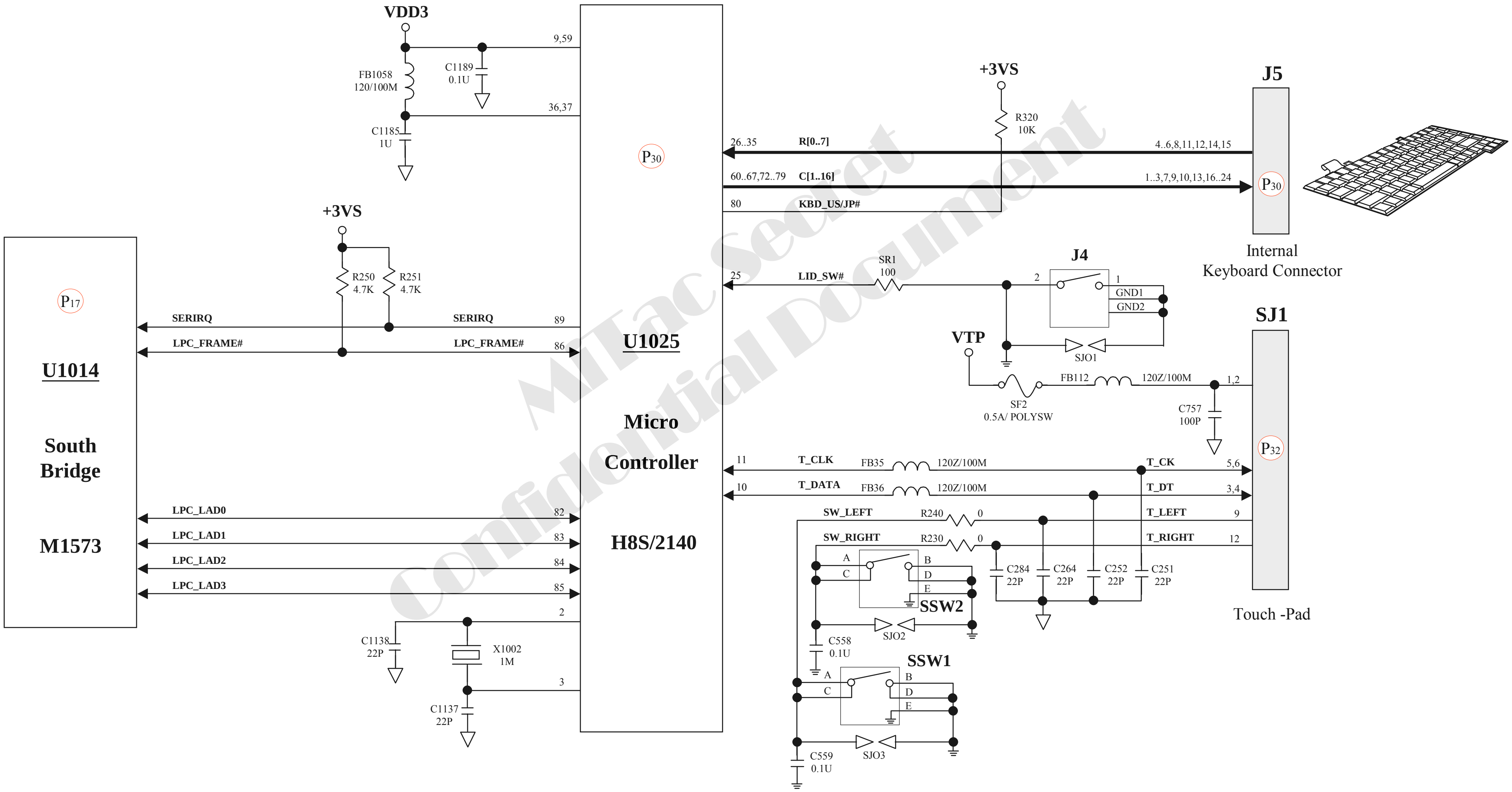
U1016
U1018
U1014
Q1011
Q1012
RP[7..16]
RP[17..21]
R328
R329
C365
C376
R334
C363
C366
R335
C428
C429
J1012
J1015

Signals:

+1.25V
+2.5V
+DDR_VREF_A/B
CKEA
CKEB
CPU_CS# [0..3]
CPU_MD [0..63]
CPU_DQS [0..7]
CPU_DQM [0..7]
DDR_RASA/B#
DDR_CASA/B#
DDR_WEA#
DDR_WEB#
DDR_CLK[0,1]#
DDR_CLK[4..7]#
SMBDATA
SMBCLK

8.6 Keyboard (K/B)/Touch-Pad(T/P) Test Error(1)

Error message of keyboard or touch-pad Test Error is shown or any key does not work.


VDD3
FB1058 120/100M
C1189 0.1U
C1185 1U
9,59
36,37
+3VS
R250 4.7K
R251 4.7K
P17
U1014
South Bridge
M1573
SERIRQ
LPC_FRAME#
LPC_LAD0
LPC_LAD1
LPC_LAD2
LPC_LAD3
89
86
82
83
84
85
2
3
C1138 22P
X1002 1M
C1137 22P
P30
U1025
Micro Controller
H8S/2140
+3VS
R320 10K
26..35
R[0..7]
60..67,72..79
C[1..16]
80
KBD_US/JP#
4..6,8,11,12,14,15
1..3,7,9,10,13,16..24
J5
P30
Internal Keyboard Connector
25
LID_SW#
SR1 100
J4
2
1
GND1
GND2
SJO1
VTP
SF2 0.5A/ POLYSW
FB112
120Z/100M
1,2
C757 100P
SJ1
P32
11
T_CLK
FB35
120Z/100M
T_CK
5,6
10
T_DATA
FB36
120Z/100M
T_DT
3,4
SW_LEFT
R240
0
T_LEFT
9
SW_RIGHT
R230
0
T_RIGHT
12
C284 22P
C264 22P
C252 22P
C251 22P
A
B
C
D
E
SSW2
SJO2
C558 0.1U
SSW1
A
B
C
D
E
SJO3
C559 0.1U
Touch -Pad

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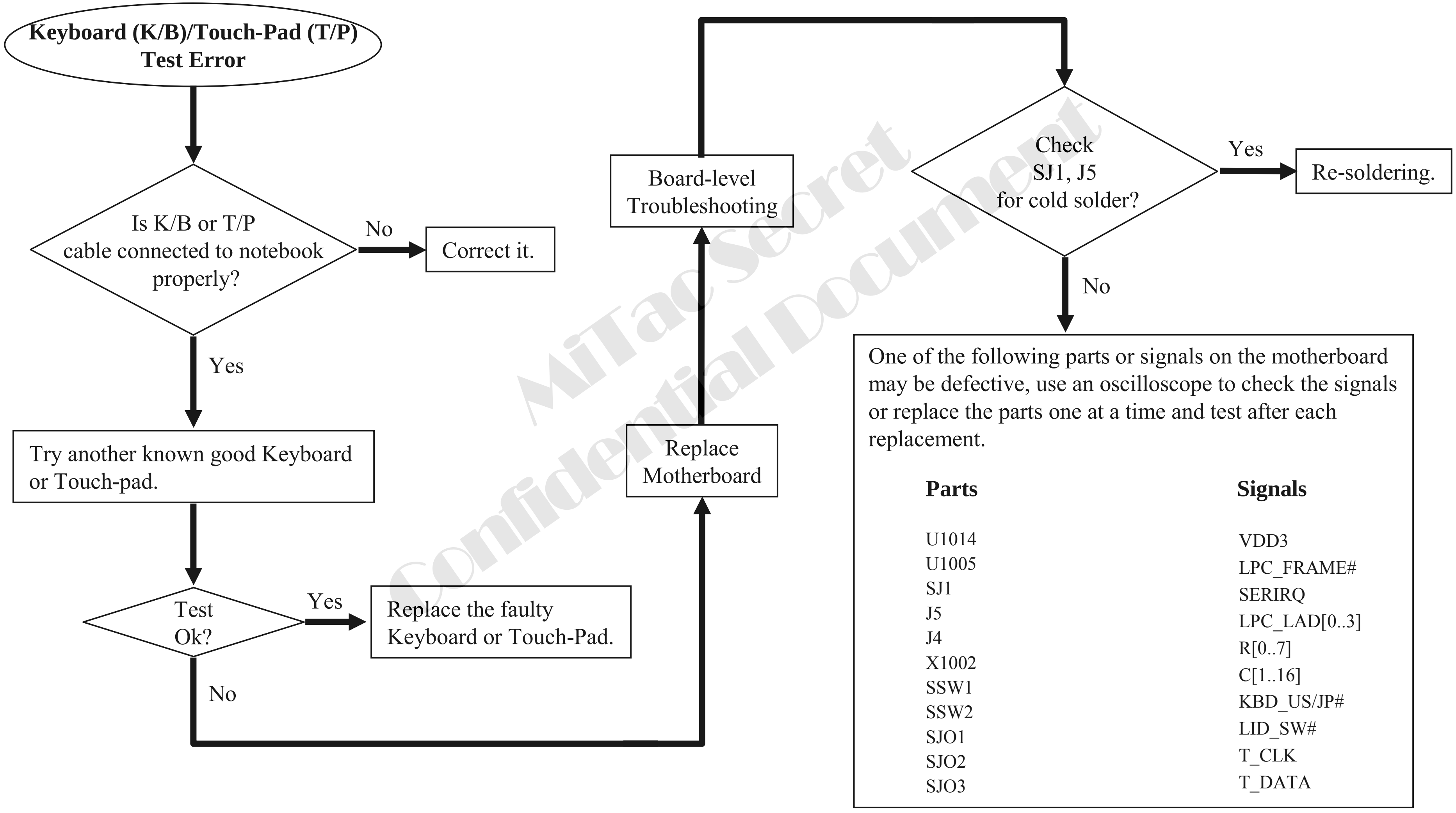
8.6 Keyboard (K/B)/Touch-Pad(T/P) Test Error(2)

Error message of keyboard or touch-pad Test Error is shown or any key does not work.


Keyboard (K/B)/Touch-Pad (T/P) Test Error
Is K/B or T/P cable connected to notebook properly?
No
Correct it.
Yes
Try another known good Keyboard or Touch-pad.
Test Ok?
Yes
Replace the faulty Keyboard or Touch-Pad.
No
Replace Motherboard
Board-level Troubleshooting
Check SJ1, J5 for cold solder?
Yes
Re-soldering.
No

One of the following parts or signals on the motherboard may be defective, use an oscilloscope to check the signals or replace the parts one at a time and test after each replacement.

Parts	**Signals**
U1014	VDD3
U1005	LPC_FRAME#
SJ1	SERIRQ
J5	LPC_LAD[0..3]
J4	R[0..7]
X1002	C[1..16]
SSW1	KBD_US/JP#
SSW2	LID_SW#
SJO1	T_CLK
SJO2	T_DATA
SJO3	

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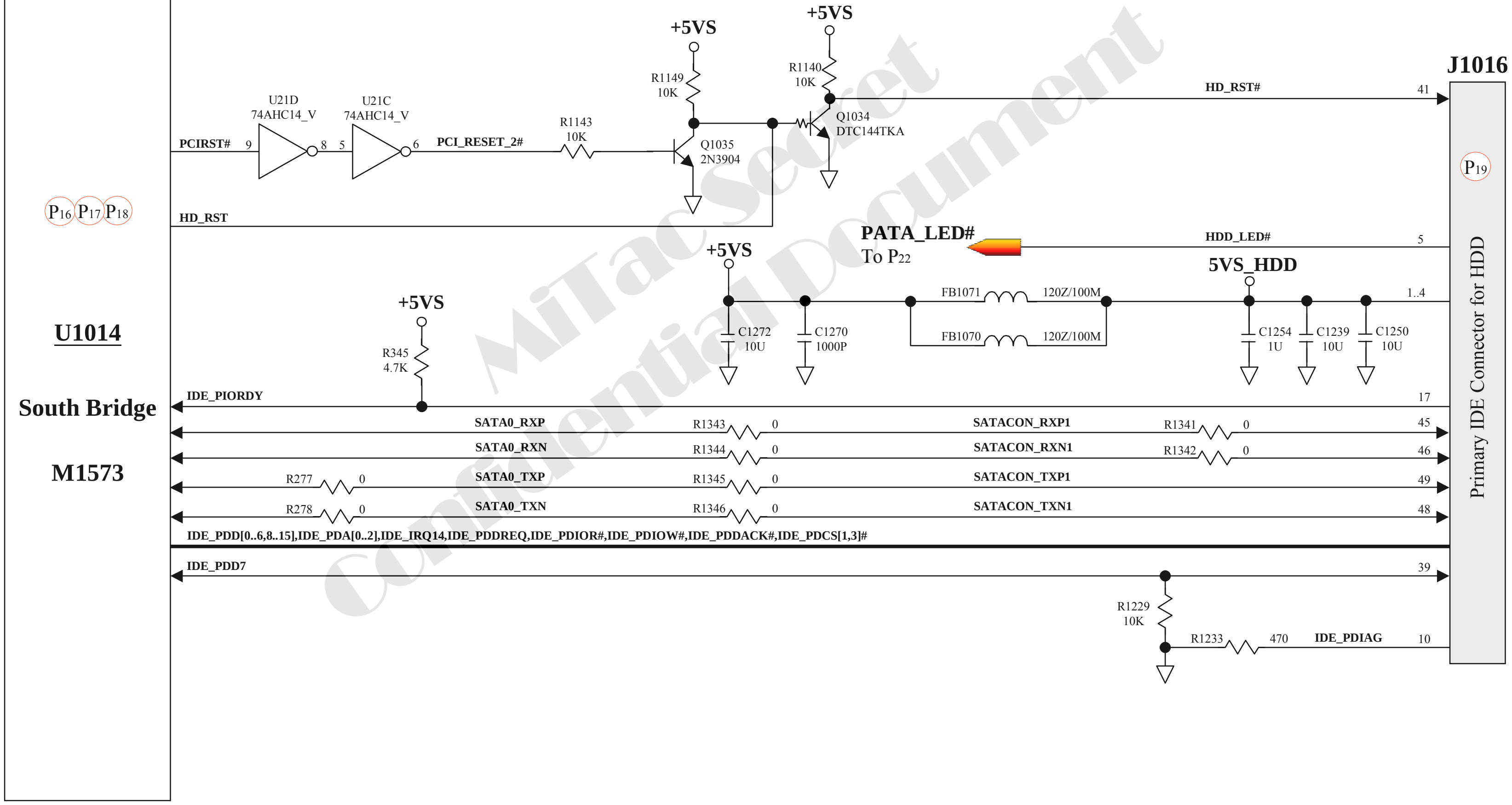
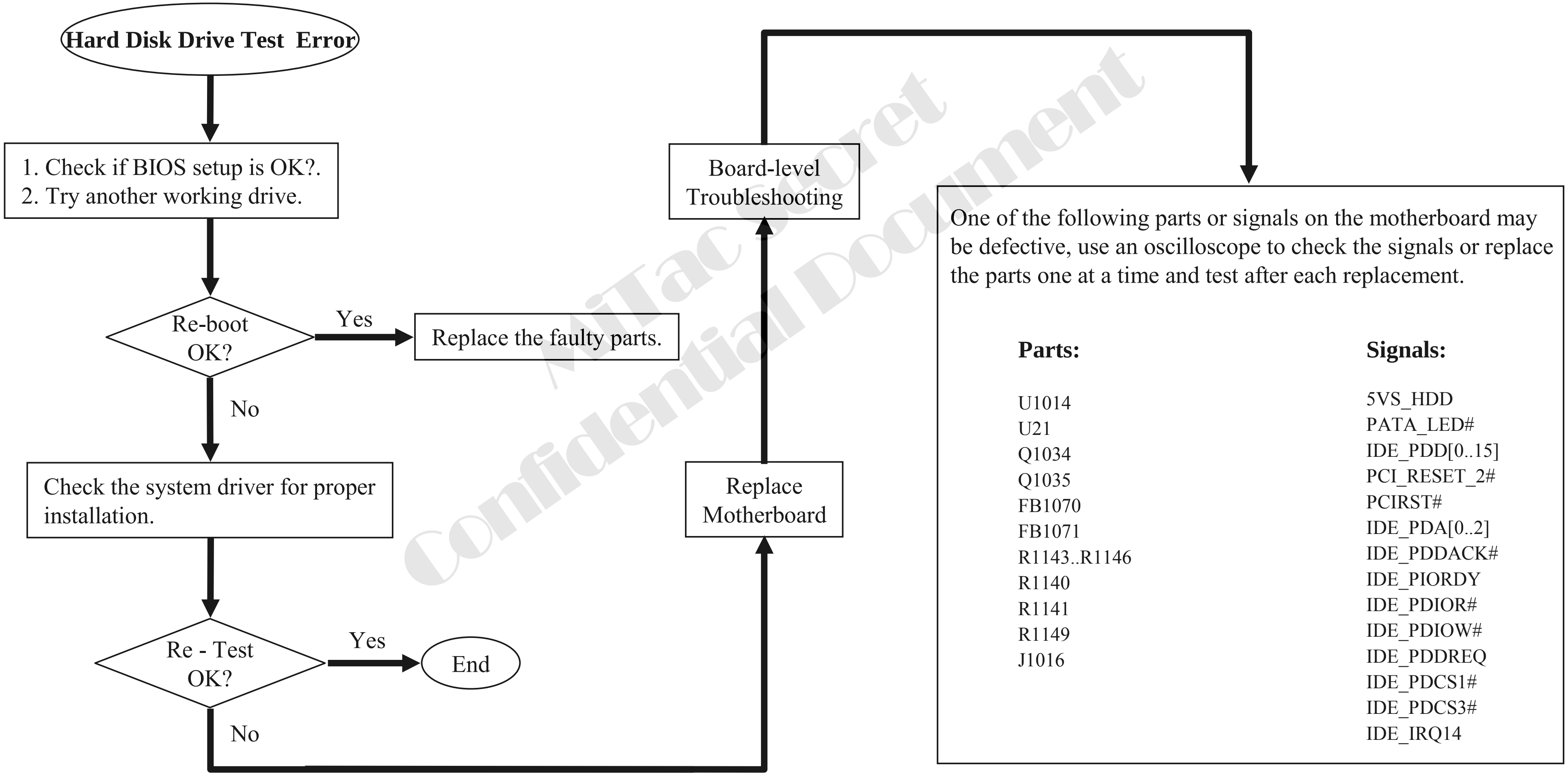
8.7 Hard Disk Drive Test Error(1)

Either an error message is shown, or the drive motor spins non-stop, while reading data from or writing data to hard disk.


+5VS
+5VS
J1016
R1149
10K
R1140
10K
HD_RST#
41
U21D
74AHC14_V
U21C
74AHC14_V
R1143
10K
Q1034
DTC144TKA
PCIRST#
9
8
5
6
PCI_RESET_2#
Q1035
2N3904
P16
P17
P18
P19
HD_RST
PATA_LED#
To P22
HDD_LED#
5
+5VS
5VS_HDD
FB1071
120Z/100M
1..4
+5VS
FB1070
120Z/100M
C1272
10U
C1270
1000P
C1254
1U
C1239
10U
C1250
10U
R345
4.7K
U1014
South Bridge
M1573
IDE_PIORDY
17
SATA0_RXP
R1343
0
SATACON_RXP1
R1341
0
45
SATA0_RXN
R1344
0
SATACON_RXN1
R1342
0
46
R277
0
SATA0_TXP
R1345
0
SATACON_TXP1
49
R278
0
SATA0_TXN
R1346
0
SATACON_TXN1
48
IDE_PDD[0..6,8..15],IDE_PDA[0..2],IDE_IRQ14,IDE_PDDREQ,IDE_PDIOR#,IDE_PDIOW#,IDE_PDDACK#,IDE_PDCS[1,3]#
IDE_PDD7
39
R1229
10K
R1233
470
IDE_PDIAG
10
Primary IDE Connector for HDD

8.7 Hard Disk Drive Test Error(2)

Either an error message is shown, or the drive motor spins non-stop, while reading data from or writing data to hard disk.


Hard Disk Drive Test Error
1. Check if BIOS setup is OK?.
2. Try another working drive.
Re-boot OK?
Yes
Replace the faulty parts.
No
Check the system driver for proper installation.
Re - Test OK?
Yes
End
No
Replace Motherboard
Board-level Troubleshooting

One of the following parts or signals on the motherboard may be defective, use an oscilloscope to check the signals or replace the parts one at a time and test after each replacement.

Parts:

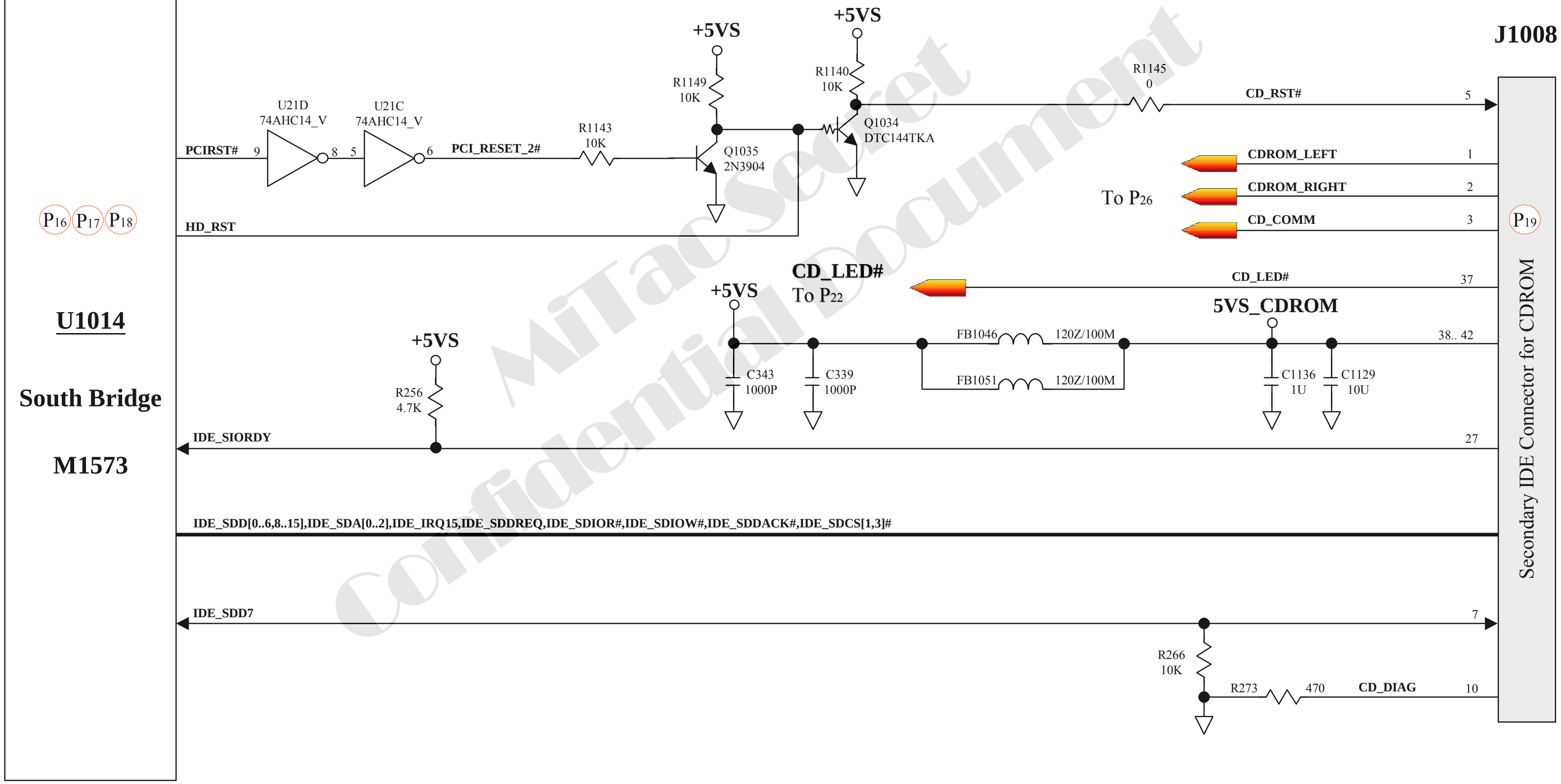
U1014
U21
Q1034
Q1035
FB1070
FB1071
R1143..R1146
R1140
R1141
R1149
J1016

Signals:

5VS_HDD
PATA_LED#
IDE_PDD[0..15]
PCI_RESET_2#
PCIRST#
IDE_PDA[0..2]
IDE_PDDACK#
IDE_PIORDY
IDE_PDIOR#
IDE_PDIOW#
IDE_PDDREQ
IDE_PDCS1#
IDE_PDCS3#
IDE_IRQ14

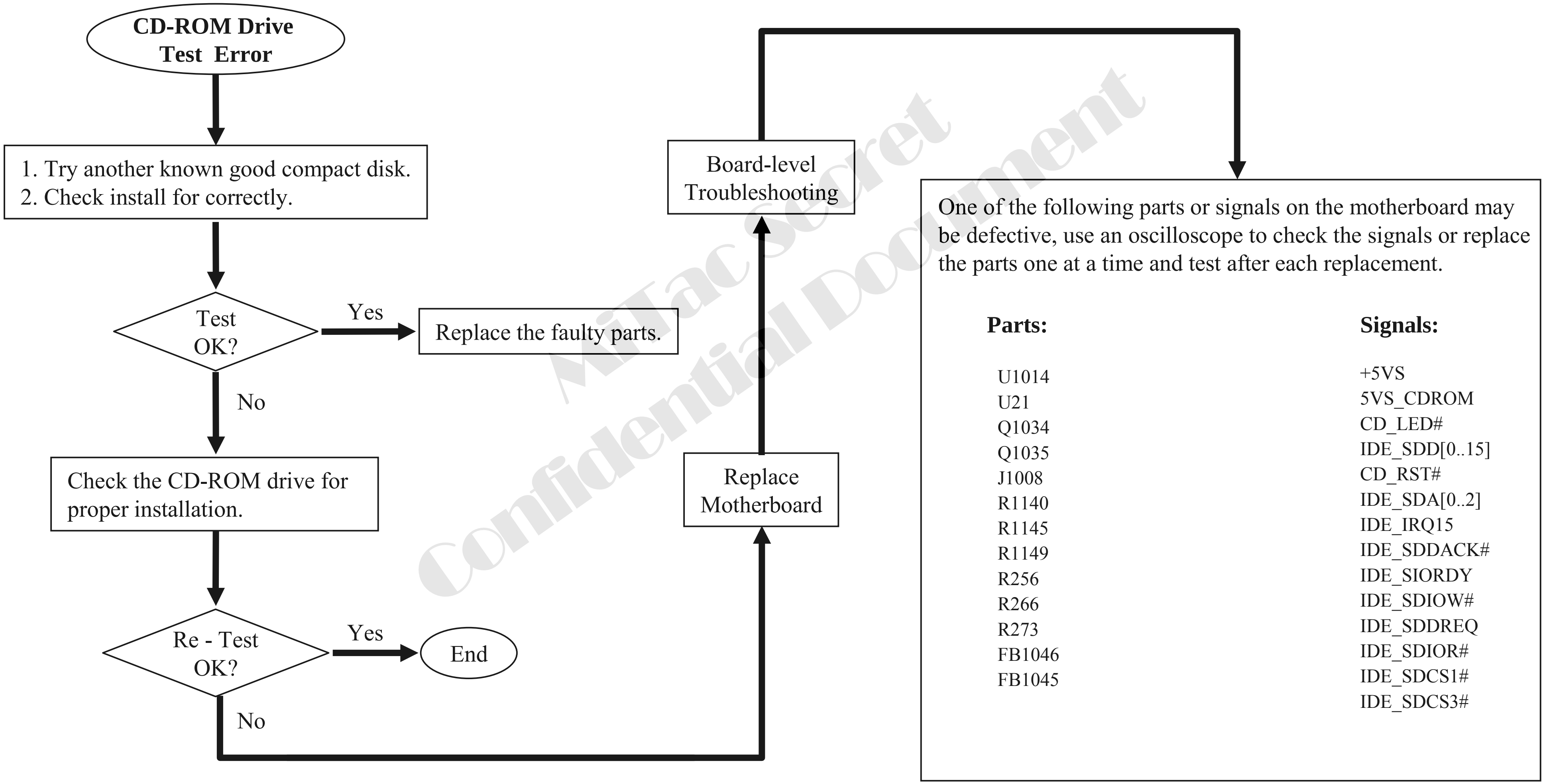
8.8 CD-ROM Drive Test Error(1)

An error message is shown when reading data from CD-ROM drive.


P16 P17 P18
U1014
South Bridge
M1573
PCIRST#
9
U21D
74AHC14_V
8
5
U21C
74AHC14_V
6
PCI_RESET_2#
R1143
10K
+5VS
R1149
10K
Q1035
2N3904
+5VS
R1140
10K
Q1034
DTC144TKA
HD_RST
R1145
0
CD_RST#
5
J1008
CDROM_LEFT
1
CDROM_RIGHT
2
CD_COMM
3
To P26
P19
CD_LED#
To P22
CD_LED#
37
+5VS
5VS_CDROM
FB1046
120Z/100M
38.. 42
C343
1000P
C339
1000P
FB1051
120Z/100M
C1136
1U
C1129
10U
+5VS
R256
4.7K
IDE_SIORDY
27
IDE_SDD[0..6,8..15],IDE_SDA[0..2],IDE_IRQ15,IDE_SDDREQ,IDE_SDIOR#,IDE_SDIOW#,IDE_SDDACK#,IDE_SDCS[1,3]#
Secondary IDE Connector for CDROM
IDE_SDD7
7
R266
10K
R273
470
CD_DIAG
10

8.8 CD-ROM Drive Test Error(2)

An error message is shown when reading data from CD-ROM drive.


CD-ROM Drive Test Error
1. Try another known good compact disk.
2. Check install for correctly.
Test OK?
Yes
Replace the faulty parts.
No
Check the CD-ROM drive for proper installation.
Re - Test OK?
Yes
End
No
Replace Motherboard
Board-level Troubleshooting

One of the following parts or signals on the motherboard may be defective, use an oscilloscope to check the signals or replace the parts one at a time and test after each replacement.

Parts:

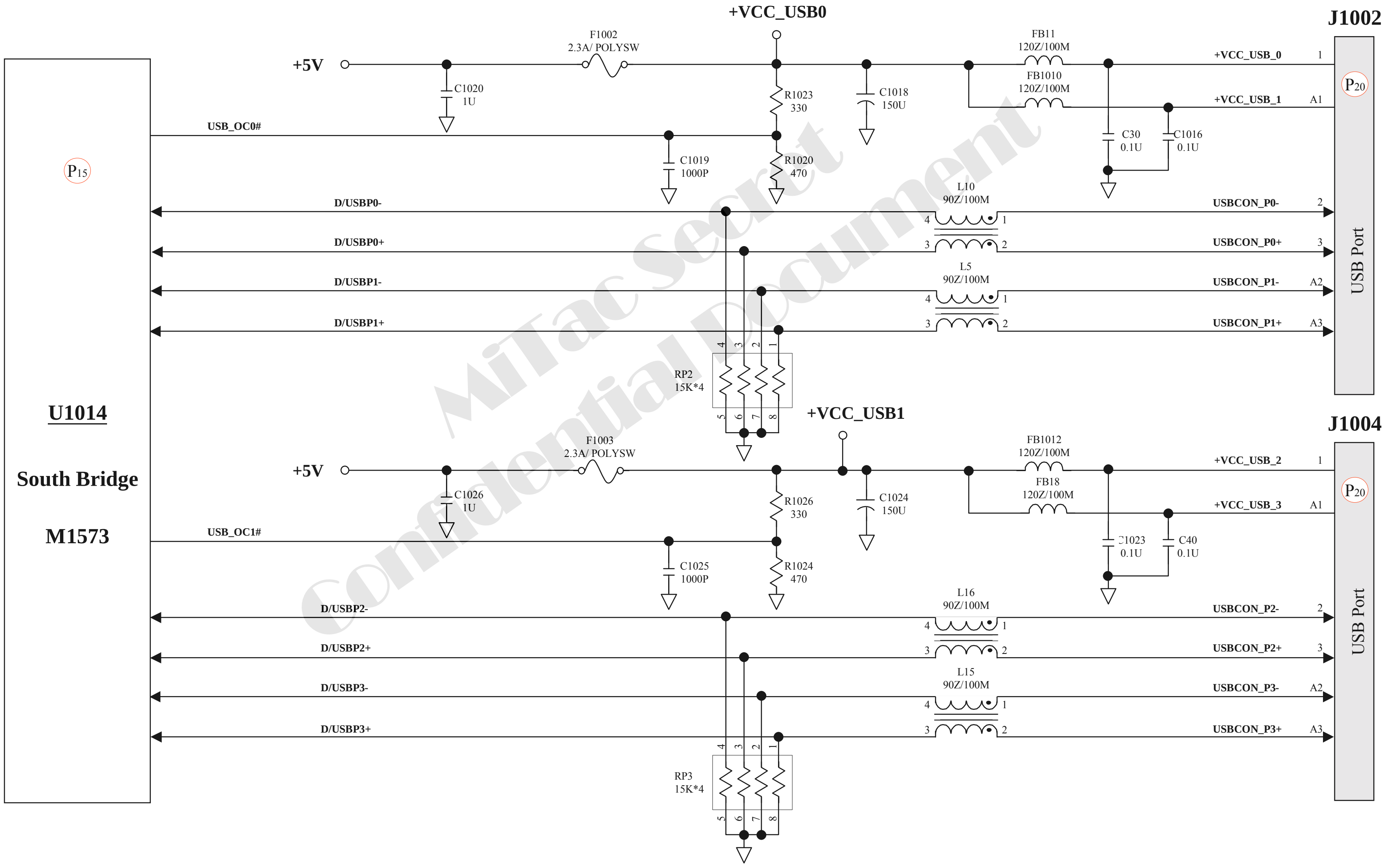
U1014
U21
Q1034
Q1035
J1008
R1140
R1145
R1149
R256
R266
R273
FB1046
FB1045

Signals:

+5VS
5VS_CDROM
CD_LED#
IDE_SDD[0..15]
CD_RST#
IDE_SDA[0..2]
IDE_IRQ15
IDE_SDDACK#
IDE_SIORDY
IDE_SDIOW#
IDE_SDDREQ
IDE_SDIOR#
IDE_SDCS1#
IDE_SDCS3#

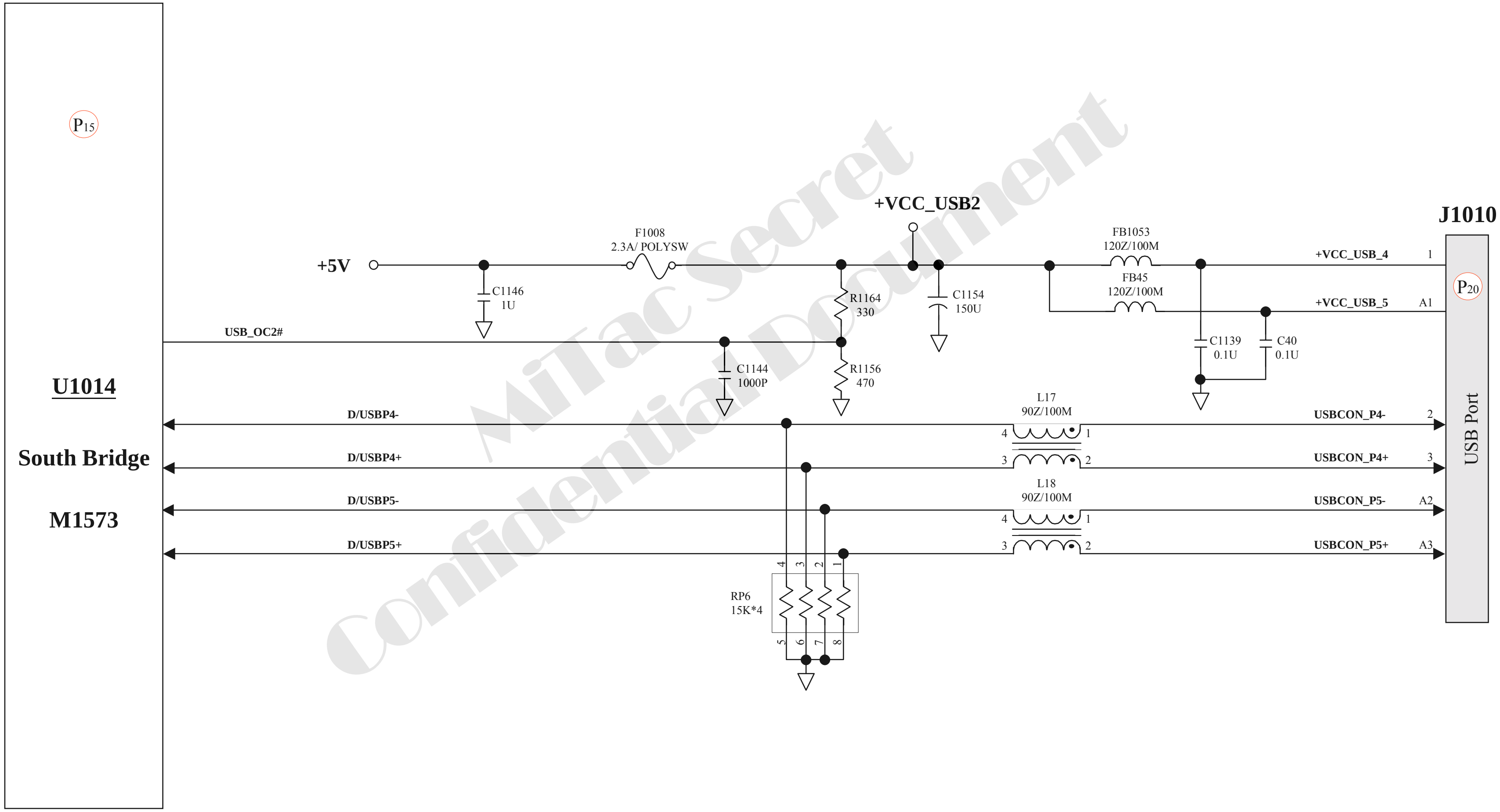
8.9 USB Test Error(1)

An error occurs when a USB I/O device is installed.


+VCC_USB0
J1002
F1002
2.3A/ POLYSW
FB11
120Z/100M
+5V
+VCC_USB_0
1
FB1010
120Z/100M
C1020
1U
R1023
330
C1018
150U
+VCC_USB_1
A1
P20
USB_OC0#
C30
0.1U
C1016
0.1U
P15
C1019
1000P
R1020
470
L10
90Z/100M
D/USBP0-
USBCON_P0-
2
4
1
D/USBP0+
USBCON_P0+
3
3
2
L5
90Z/100M
D/USBP1-
USBCON_P1-
A2
USB Port
D/USBP1+
USBCON_P1+
A3
RP2
15K*4
U1014
+VCC_USB1
J1004
South Bridge
F1003
2.3A/ POLYSW
FB1012
120Z/100M
+5V
+VCC_USB_2
C1026
1U
R1026
330
C1024
150U
FB18
120Z/100M
+VCC_USB_3
M1573
USB_OC1#
C1023
0.1U
C40
0.1U
C1025
1000P
R1024
470
L16
90Z/100M
D/USBP2-
USBCON_P2-
D/USBP2+
USBCON_P2+
L15
90Z/100M
D/USBP3-
USBCON_P3-
D/USBP3+
USBCON_P3+
RP3
15K*4

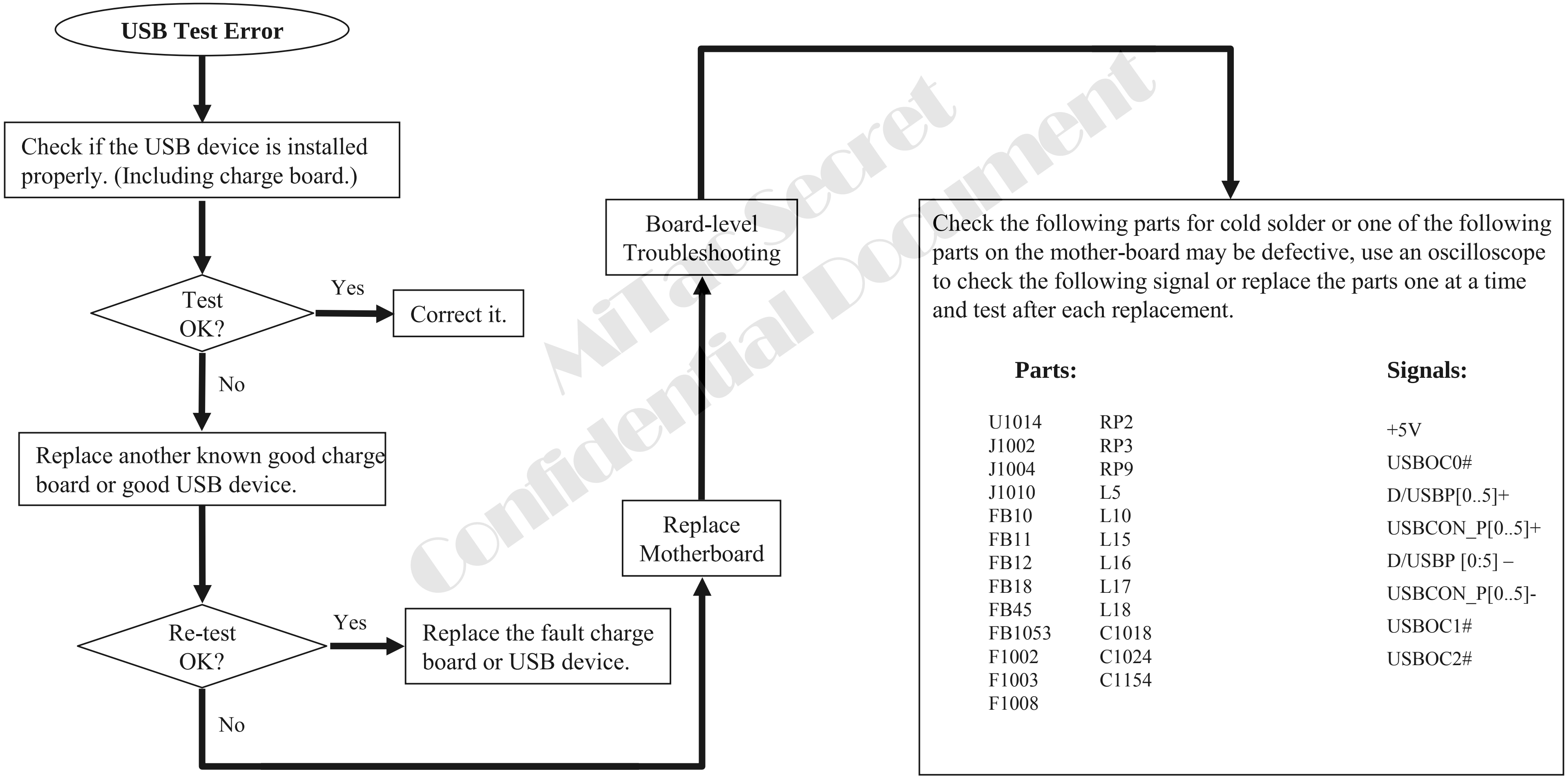
8.9 USB Test Error(2)

An error occurs when a USB I/O device is installed.


P15
U1014
South Bridge
M1573
+5V
C1146
1U
F1008
2.3A/ POLYSW
+VCC_USB2
R1164
330
C1154
150U
USB_OC2#
C1144
1000P
R1156
470
FB1053
120Z/100M
FB45
120Z/100M
C1139
0.1U
C40
0.1U
+VCC_USB_4
+VCC_USB_5
J1010
P20
USB Port
1
A1
2
3
A2
A3
D/USBP4-
D/USBP4+
D/USBP5-
D/USBP5+
L17
90Z/100M
L18
90Z/100M
USBCON_P4-
USBCON_P4+
USBCON_P5-
USBCON_P5+
RP6
15K*4

8.9 USB Test Error(3)

An error occurs when a USB I/O device is installed.


USB Test Error
Check if the USB device is installed properly. (Including charge board.)
Test OK?
Yes
Correct it.
No
Replace another known good charge board or good USB device.
Re-test OK?
Yes
Replace the fault charge board or USB device.
No
Replace Motherboard
Board-level Troubleshooting

Check the following parts for cold solder or one of the following parts on the mother-board may be defective, use an oscilloscope to check the following signal or replace the parts one at a time and test after each replacement.

Parts:

U1014
J1002
J1004
J1010
FB10
FB11
FB12
FB18
FB45
FB1053
F1002
F1003
F1008

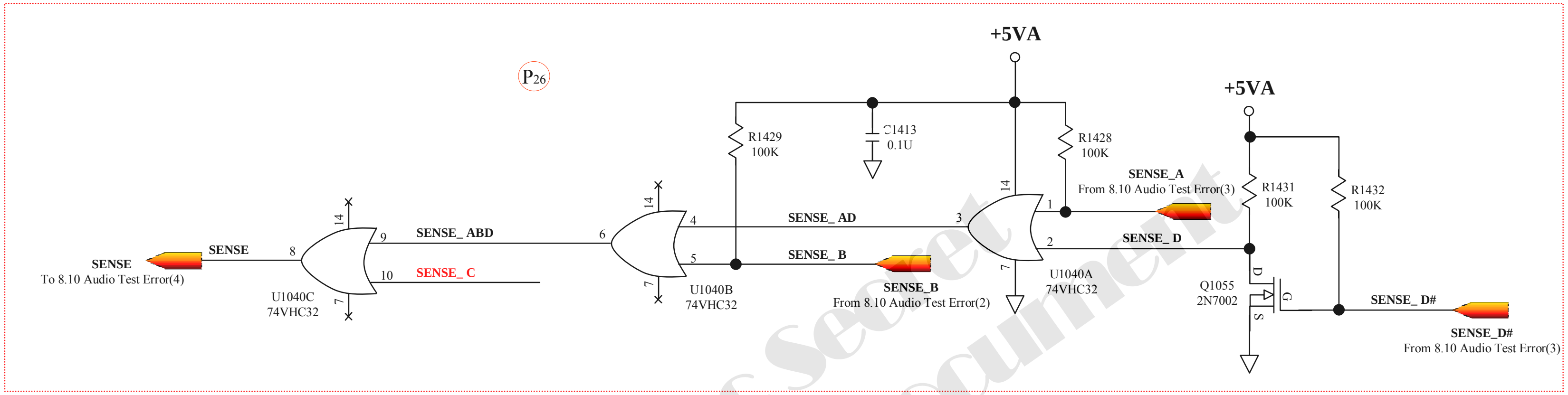
RP2
RP3
RP9
L5
L10
L15
L16
L17
L18
C1018
C1024
C1154

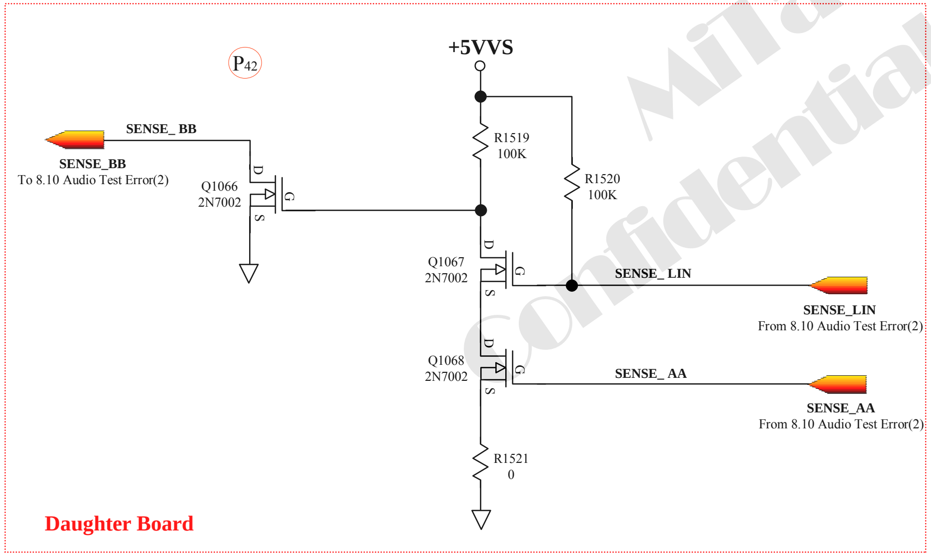
Signals:

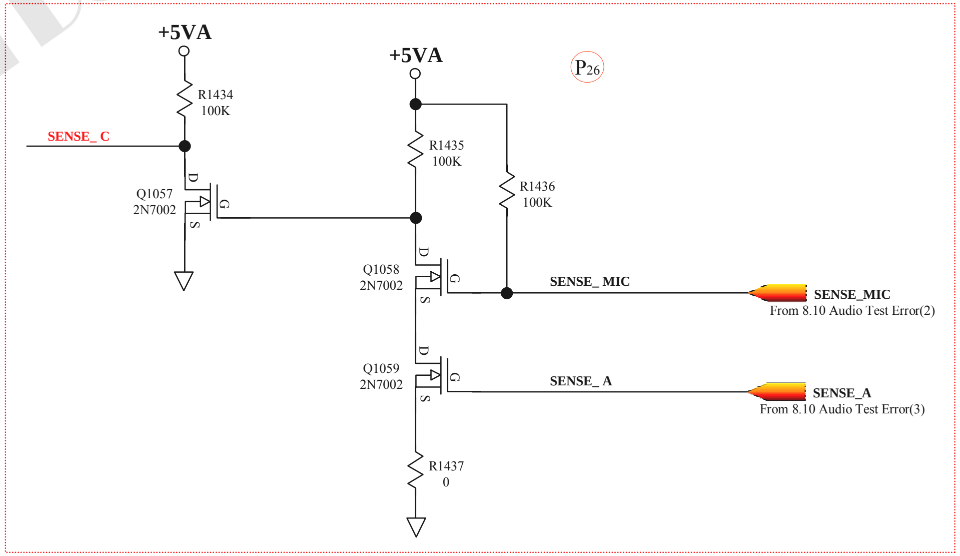
+5V
USBOC0#
D/USBP[0..5]+
USBCON_P[0..5]+
D/USBP [0:5] –
USBCON_P[0..5]-
USBOC1#
USBOC2#

8.10 Audio Test Error(1)

No sound from speaker after audio driver is installed.


P26
+5VA
+5VA
R1429
100K
C1413
0.1U
R1428
100K
R1431
100K
R1432
100K
SENSE_A
From 8.10 Audio Test Error(3)
SENSE
To 8.10 Audio Test Error(4)
SENSE
8
9
10
14
7
SENSE_ ABD
SENSE_ C
U1040C
74VHC32
6
4
5
14
7
SENSE_ AD
SENSE_ B
U1040B
74VHC32
SENSE_B
From 8.10 Audio Test Error(2)
3
1
2
14
7
U1040A
74VHC32
SENSE_ D
Q1055
2N7002
D
G
S
SENSE_ D#
SENSE_D#
To 8.10 Audio Test Error(3)


P42
+5VVS
SENSE_ BB
SENSE_BB
To 8.10 Audio Test Error(2)
Q1066
2N7002
D
G
S
R1519
100K
R1520
100K
Q1067
2N7002
SENSE_ LIN
SENSE_LIN
From 8.10 Audio Test Error(2)
Q1068
2N7002
SENSE_ AA
SENSE_AA
From 8.10 Audio Test Error(2)
R1521
0
Daughter Board


+5VA
+5VA
P26
R1434
100K
SENSE_ C
Q1057
2N7002
D
G
S
R1435
100K
R1436
100K
Q1058
2N7002
SENSE_ MIC
SENSE_MIC
From 8.10 Audio Test Error(2)
Q1059
2N7002
SENSE_ A
SENSE_A
From 8.10 Audio Test Error(3)
R1437
0

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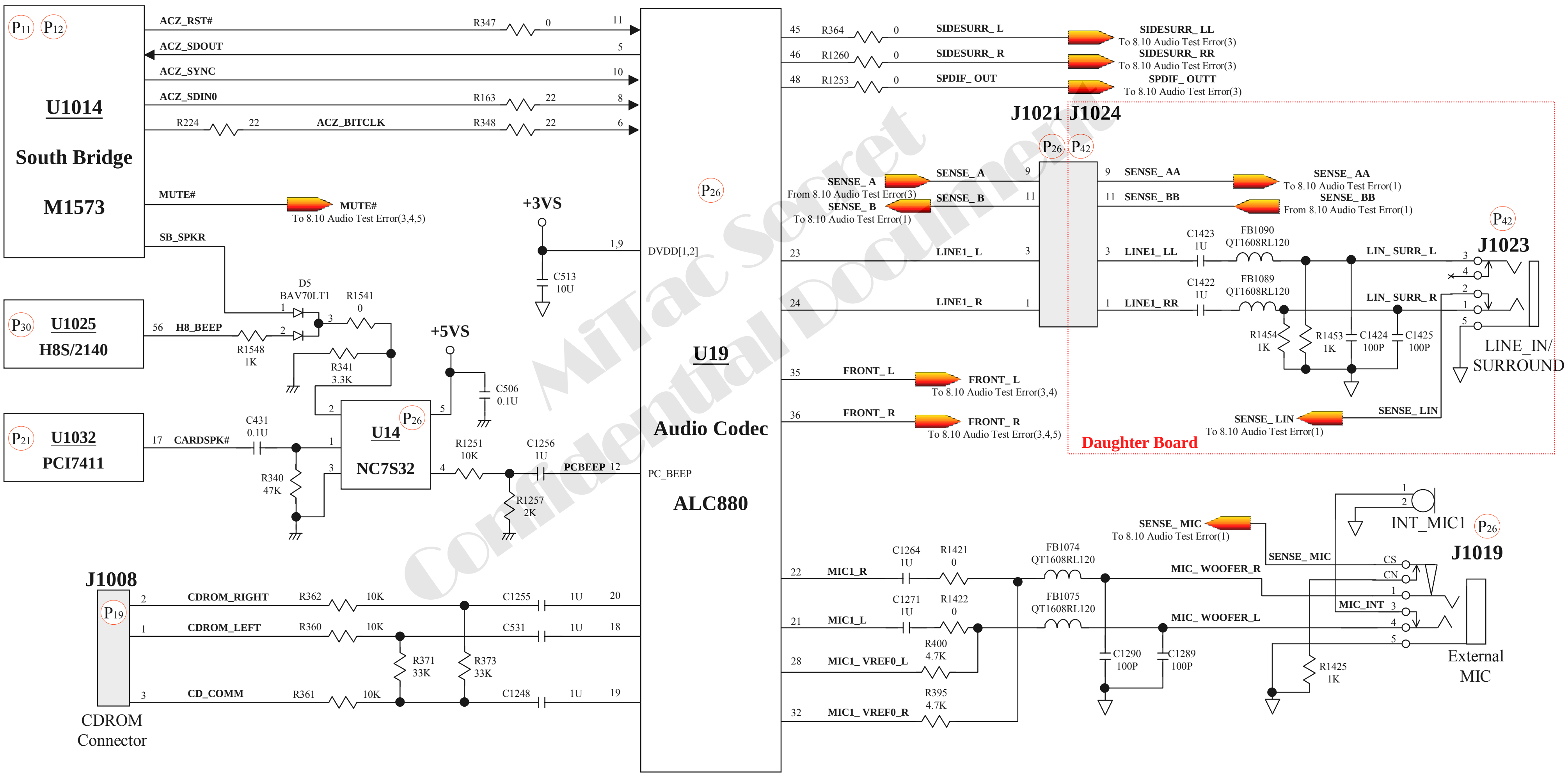
8.10 Audio Test Error(2) – Audio IN

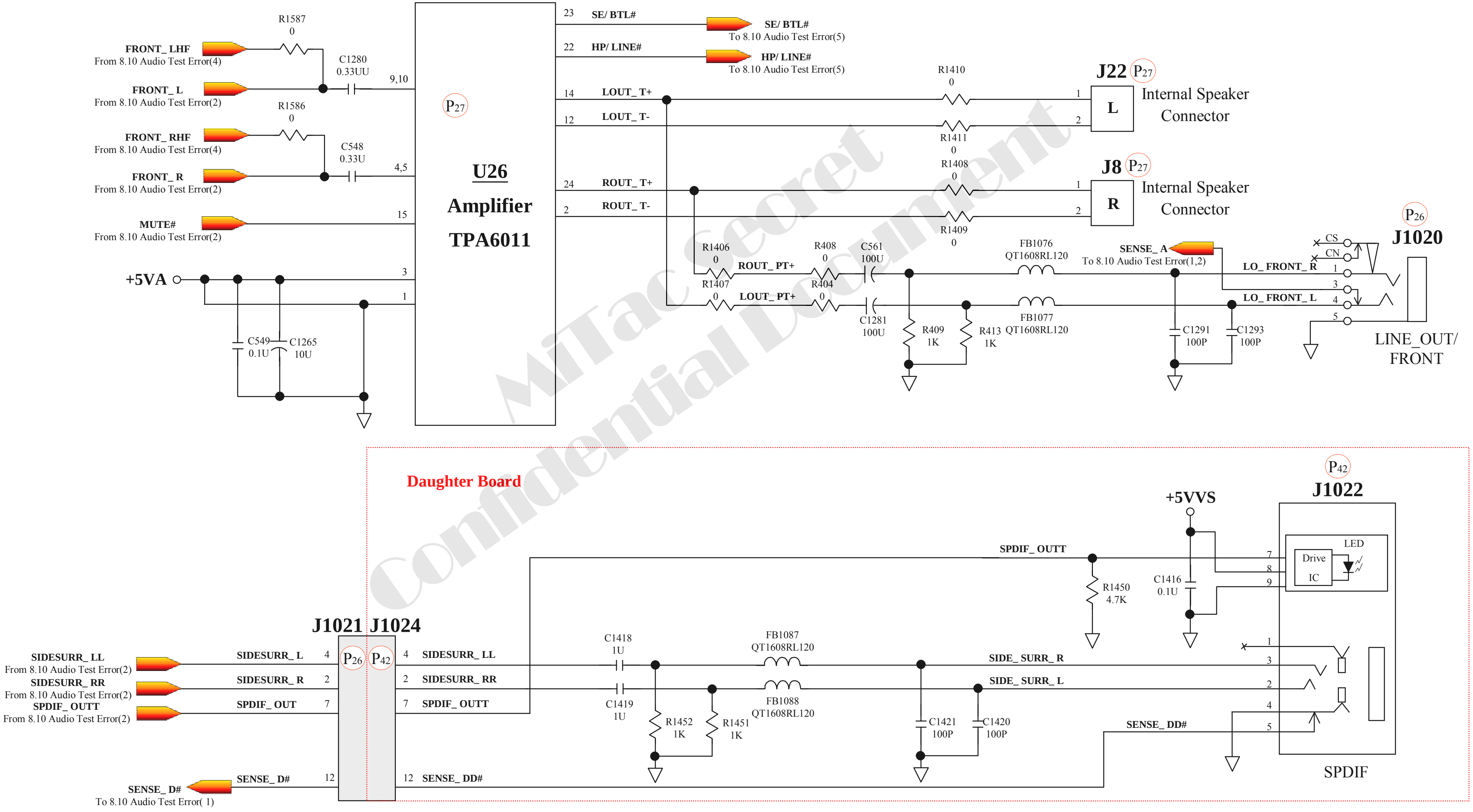
No sound from speaker after audio driver is installed.


P11 P12
U1014
South Bridge
M1573
ACZ_RST#
R347 0 11
ACZ_SDOUT 5
ACZ_SYNC 10
ACZ_SDIN0 R163 22 8
R224 22 ACZ_BITCLK R348 22 6
MUTE#
MUTE#
To 8.10 Audio Test Error(3,4,5)
SB_SPKR
+3VS
1,9
C513 10U
DVDD[1,2]
P26
U19
Audio Codec
ALC880
PC_BEEP
P30 U1025 H8S/2140
56 H8_BEEP
R1548 1K
D5 BAV70LT1
R1541 0
R341 3.3K
+5VS
C506 0.1U
P21 U1032 PCI7411
17 CARDSPK#
C431 0.1U
R340 47K
U14 NC7S32 P26
R1251 10K
C1256 1U
PCBEEP 12
R1257 2K
J1008
P19
CDROM Connector
CDROM_RIGHT R362 10K C1255 1U 20
CDROM_LEFT R360 10K C531 1U 18
CD_COMM R361 10K C1248 1U 19
R371 33K
R373 33K
45 R364 0 SIDESURR_L
SIDESURR_LL To 8.10 Audio Test Error(3)
46 R1260 0 SIDESURR_R
SIDESURR_RR To 8.10 Audio Test Error(3)
48 R1253 0 SPDIF_OUT
SPDIF_OUTT To 8.10 Audio Test Error(3)
J1021 J1024
P26 P42
SENSE_A From 8.10 Audio Test Error(3)
SENSE_B To 8.10 Audio Test Error(1)
SENSE_A 9
SENSE_B 11
9 SENSE_AA
SENSE_AA To 8.10 Audio Test Error(1)
11 SENSE_BB
SENSE_BB From 8.10 Audio Test Error(1)
23 LINE1_L 3
3 LINE1_LL
24 LINE1_R 1
1 LINE1_RR
C1423 1U
FB1090 QT1608RL120
C1422 1U
FB1089 QT1608RL120
LIN_SURR_L
LIN_SURR_R
R1454 1K
R1453 1K
C1424 100P
C1425 100P
P42
J1023
LINE_IN/ SURROUND
35 FRONT_L
FRONT_L To 8.10 Audio Test Error(3,4)
36 FRONT_R
FRONT_R To 8.10 Audio Test Error(3,4,5)
SENSE_LIN To 8.10 Audio Test Error(1)
SENSE_LIN
Daughter Board
SENSE_MIC To 8.10 Audio Test Error(1)
SENSE_MIC
INT_MIC1
P26
J1019
22 MIC1_R C1264 1U R1421 0
FB1074 QT1608RL120
MIC_WOOFER_R
21 MIC1_L C1271 1U R1422 0
FB1075 QT1608RL120
MIC_WOOFER_L
28 MIC1_VREF0_L R400 4.7K
32 MIC1_VREF0_R R395 4.7K
C1290 100P
C1289 100P
MIC_INT
CS CN
R1425 1K
External MIC

8317 N/B Maintenance

8.10 Audio Test Error(3) – Audio OUT-1

No sound from speaker after audio driver is installed.

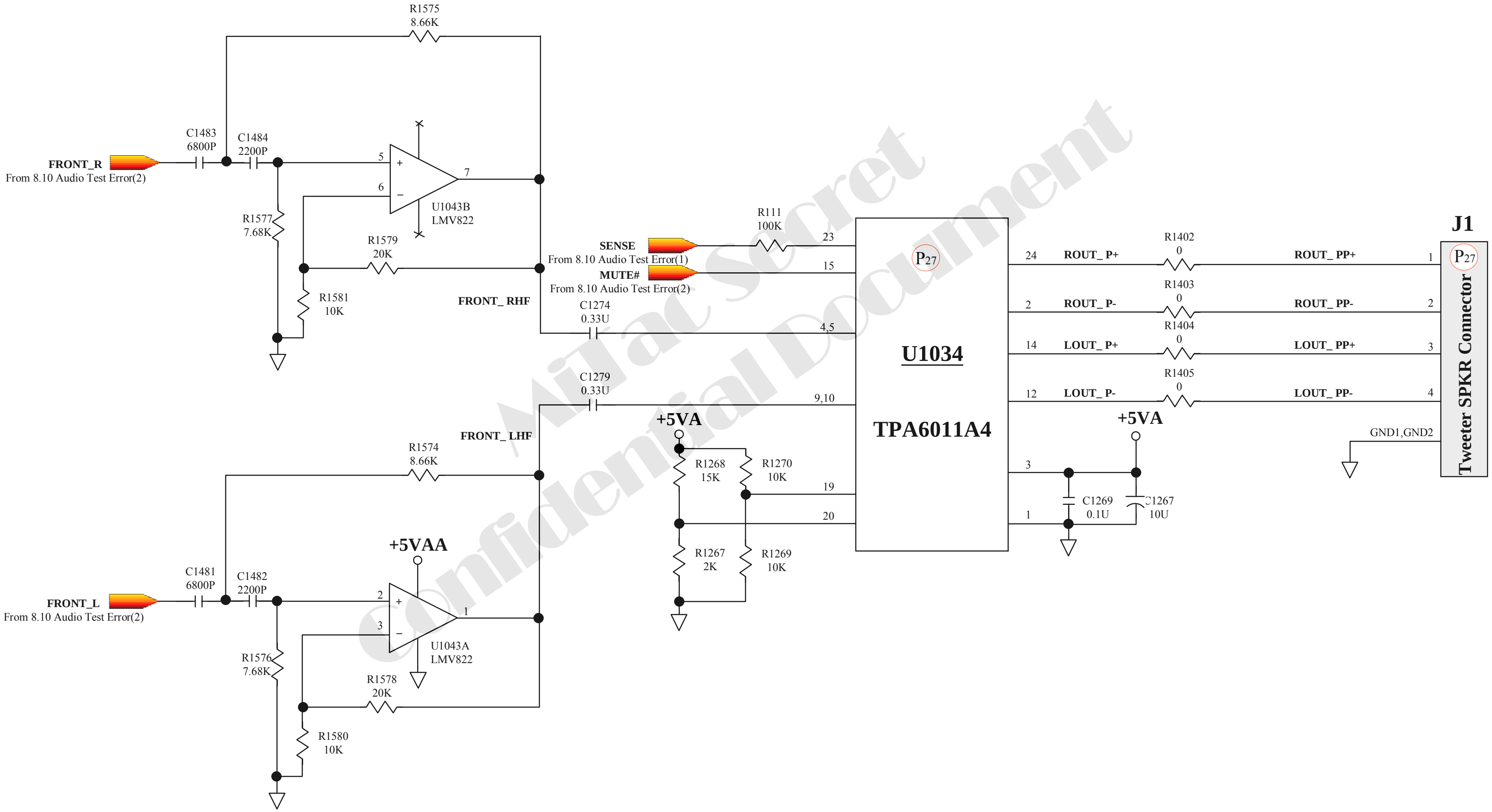


R1587
0
FRONT_ LHF
From 8.10 Audio Test Error(4)
C1280
0.33UU
9,10
FRONT_ L
From 8.10 Audio Test Error(2)
R1586
0
FRONT_ RHF
From 8.10 Audio Test Error(4)
C548
0.33U
4,5
FRONT_ R
From 8.10 Audio Test Error(2)
MUTE#
From 8.10 Audio Test Error(2)
15
+5VA
3
1
C549
0.1U
C1265
10U
P27
U26
Amplifier
TPA6011
23
SE/ BTL#
SE/ BTL#
To 8.10 Audio Test Error(5)
22
HP/ LINE#
HP/ LINE#
To 8.10 Audio Test Error(5)
14
LOUT_ T+
12
LOUT_ T-
R1410
0
R1411
0
J22
P27
L
Internal Speaker
Connector
24
ROUT_ T+
2
ROUT_ T-
R1408
0
R1409
0
J8
P27
R
Internal Speaker
Connector
R1406
0
ROUT_ PT+
R408
0
C561
100U
R1407
0
LOUT_ PT+
R404
0
C1281
100U
R409
1K
R413
1K
FB1076
QT1608RL120
FB1077
QT1608RL120
SENSE_ A
To 8.10 Audio Test Error(1,2)
C1291
100P
C1293
100P
LO_ FRONT_ R
LO_ FRONT_ L
CS
CN
P26
J1020
LINE_OUT/
FRONT
Daughter Board
P42
J1022
+5VVS
SPDIF_ OUTT
R1450
4.7K
C1416
0.1U
LED
Drive
IC
J1021
J1024
P26
P42
SIDESURR_ LL
From 8.10 Audio Test Error(2)
SIDESURR_ RR
From 8.10 Audio Test Error(2)
SPDIF_ OUTT
From 8.10 Audio Test Error(2)
SIDESURR_ L
SIDESURR_ R
SPDIF_ OUT
SIDESURR_ LL
SIDESURR_ RR
SPDIF_ OUTT
C1418
1U
C1419
1U
FB1087
QT1608RL120
FB1088
QT1608RL120
R1452
1K
R1451
1K
SIDE_ SURR_ R
SIDE_ SURR_ L
C1421
100P
C1420
100P
SENSE_ DD#
SENSE_ D#
To 8.10 Audio Test Error(1)
SENSE_ D#
SENSE_ DD#
SPDIF

8317 N/B Maintenance

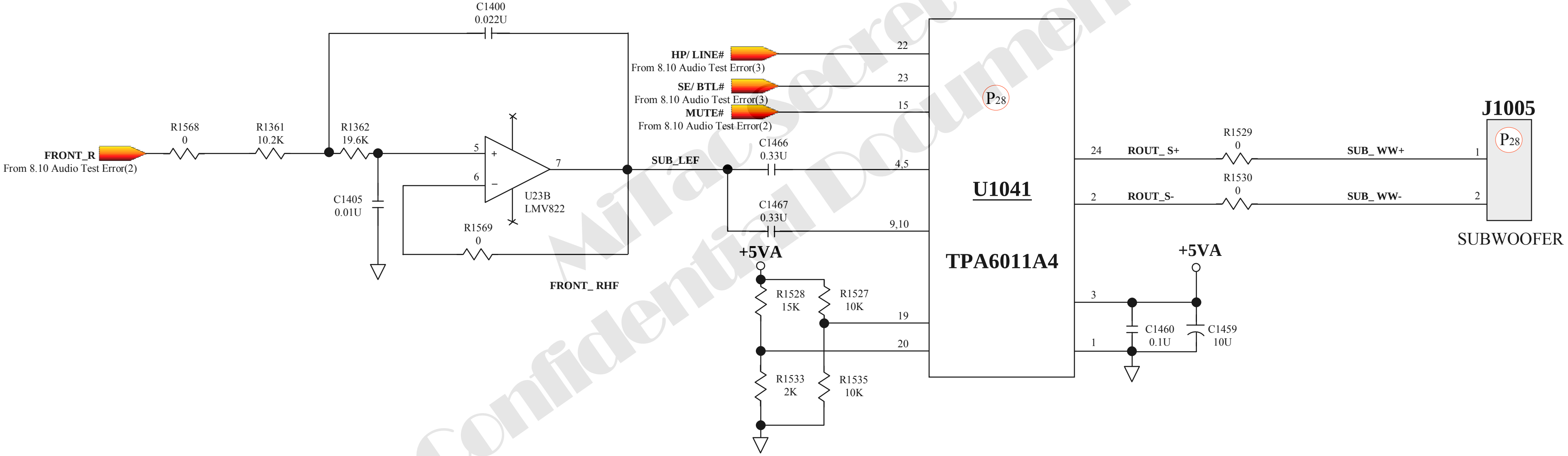
8.10 Audio Test Error(4) – Audio OUT-2

No sound from speaker after audio driver is installed.


R1575
8.66K
C1483
6800P
C1484
2200P
FRONT_R
From 8.10 Audio Test Error(2)
5
6
7
U1043B
LMV822
R1577
7.68K
R1579
20K
R1581
10K
FRONT_ RHF
SENSE
From 8.10 Audio Test Error(1)
MUTE#
From 8.10 Audio Test Error(2)
R111
100K
23
15
C1274
0.33U
4,5
C1279
0.33U
9,10
U1034
TPA6011A4
P27
24
ROUT_ P+
2
ROUT_ P-
14
LOUT_ P+
12
LOUT_ P-
R1402
0
R1403
0
R1404
0
R1405
0
ROUT_ PP+
ROUT_ PP-
LOUT_ PP+
LOUT_ PP-
1
2
3
4
J1
P27
Tweeter SPKR Connector
GND1,GND2
+5VA
3
1
C1269
0.1U
C1267
10U
FRONT_ LHF
R1574
8.66K
+5VA
R1268
15K
R1270
10K
19
20
R1267
2K
R1269
10K
+5VAA
C1481
6800P
C1482
2200P
FRONT_L
From 8.10 Audio Test Error(2)
2
3
1
U1043A
LMV822
R1576
7.68K
R1578
20K
R1580
10K

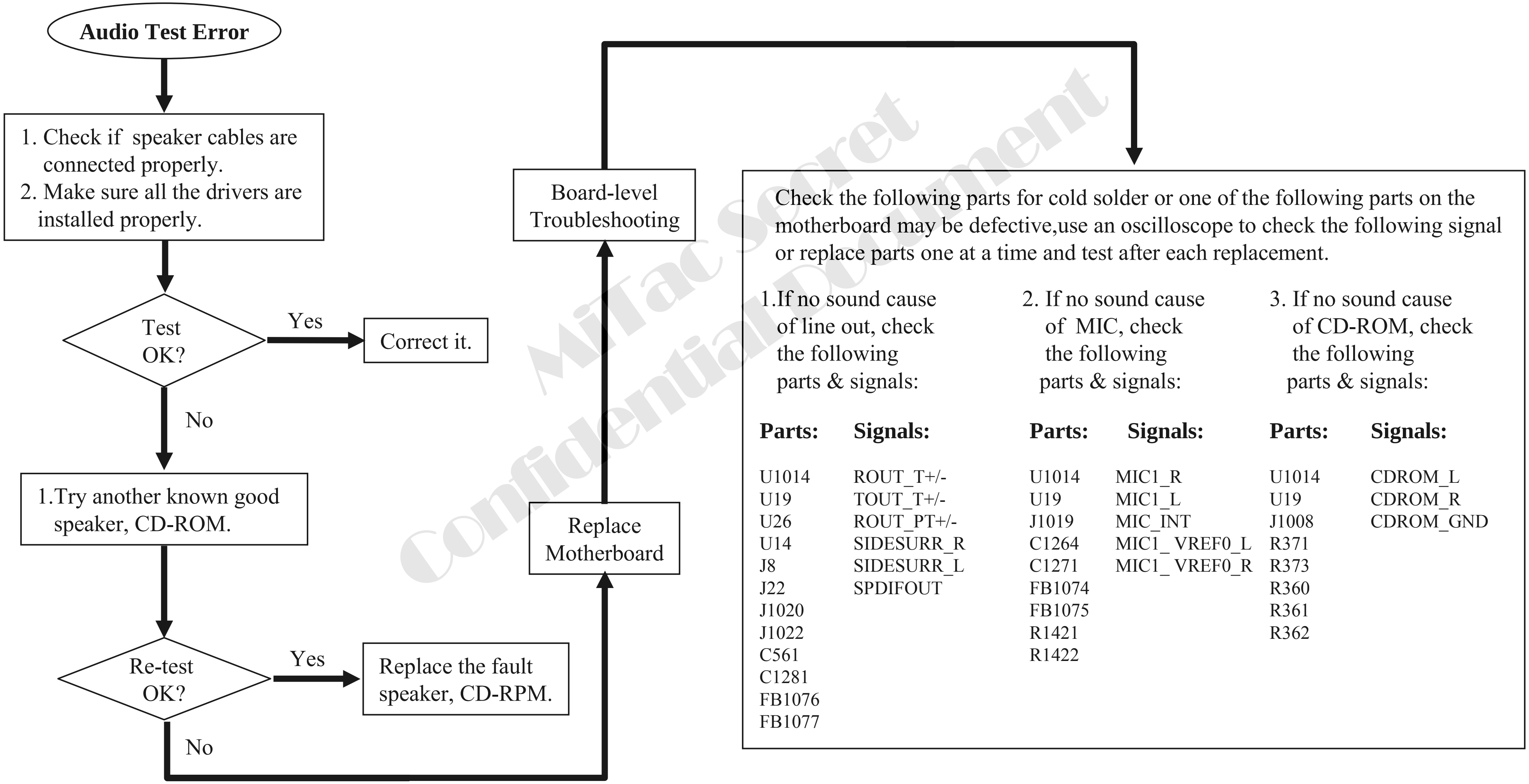
8.10 Audio Test Error(5) – Audio OUT-3

No sound from speaker after audio driver is installed.


C1400
0.022U
HP/ LINE#
From 8.10 Audio Test Error(3)
SE/ BTL#
From 8.10 Audio Test Error(3)
MUTE#
From 8.10 Audio Test Error(2)
22
23
15
P28
J1005
P28
FRONT_R
From 8.10 Audio Test Error(2)
R1568
0
R1361
10.2K
R1362
19.6K
5
6
7
+
–
U23B
LMV822
C1405
0.01U
R1569
0
FRONT_ RHF
SUB_LEF
C1466
0.33U
4,5
C1467
0.33U
9,10
U1041
TPA6011A4
24
ROUT_ S+
R1529
0
SUB_ WW+
1
2
ROUT_S-
R1530
0
SUB_ WW-
2
SUBWOOFER
+5VA
R1528
15K
R1527
10K
19
20
R1533
2K
R1535
10K
+5VA
3
1
C1460
0.1U
C1459
10U

8.10 Audio Test Error(6)

No sound from speaker after audio driver is installed.


Audio Test Error
1. Check if speaker cables are connected properly.
2. Make sure all the drivers are installed properly.
Test OK?
Yes
Correct it.
No
1.Try another known good speaker, CD-ROM.
Re-test OK?
Yes
Replace the fault speaker, CD-RPM.
No
Replace Motherboard
Board-level Troubleshooting

Check the following parts for cold solder or one of the following parts on the motherboard may be defective,use an oscilloscope to check the following signal or replace parts one at a time and test after each replacement.

1.If no sound cause of line out, check the following parts & signals:

Parts:	Signals:
U1014	ROUT_T+/-
U19	TOUT_T+/-
U26	ROUT_PT+/-
U14	SIDESURR_R
J8	SIDESURR_L
J22	SPDIFOUT
J1020	
J1022	
C561	
C1281	
FB1076	
FB1077	

2. If no sound cause of MIC, check the following parts & signals:

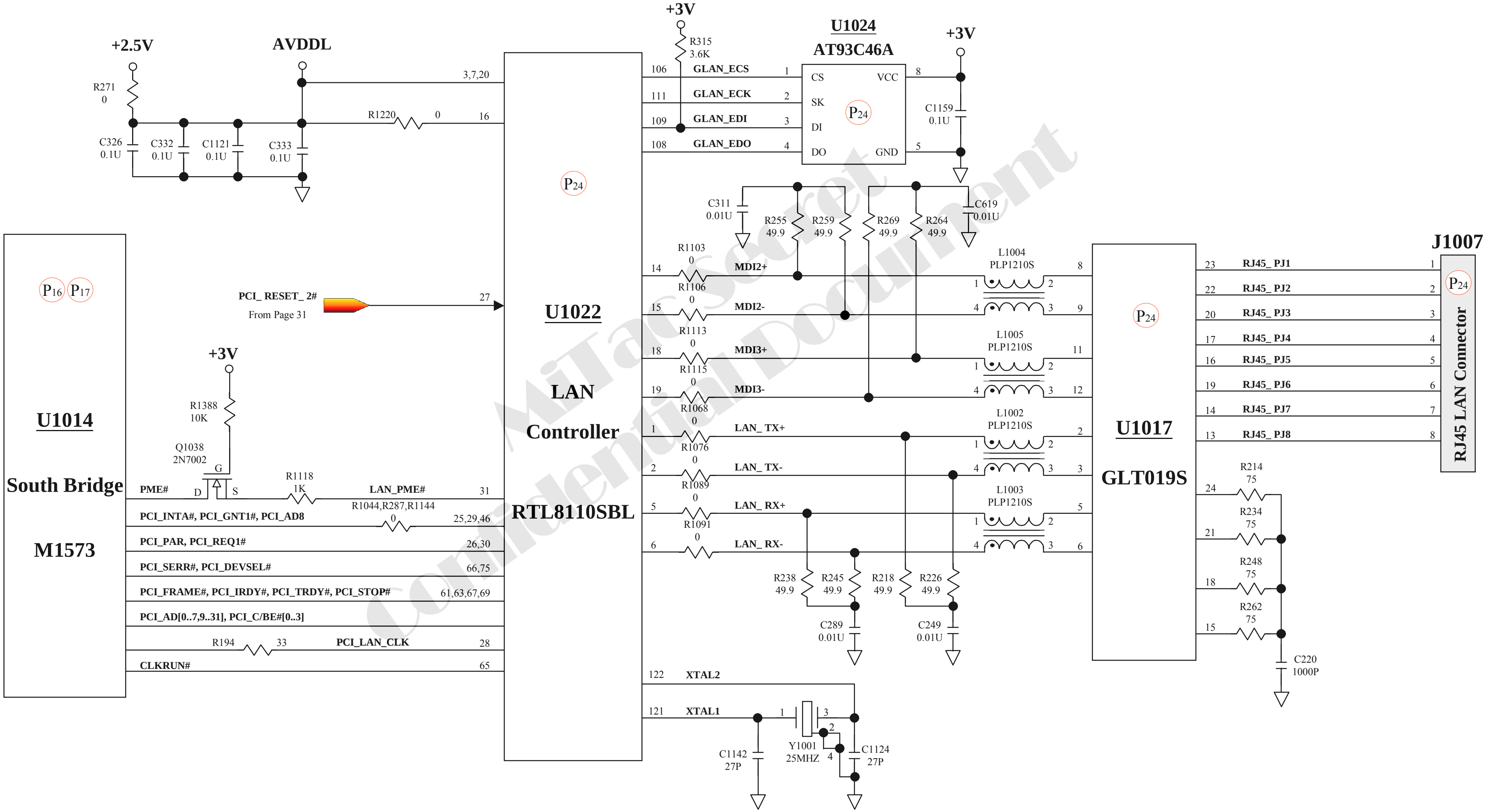
Parts:	Signals:
U1014	MIC1_R
U19	MIC1_L
J1019	MIC_INT
C1264	MIC1_ VREF0_L
C1271	MIC1_ VREF0_R
FB1074	
FB1075	
R1421	
R1422	

3. If no sound cause of CD-ROM, check the following parts & signals:

Parts:	Signals:
U1014	CDROM_L
U19	CDROM_R
J1008	CDROM_GND
R371	
R373	
R360	
R361	
R362	

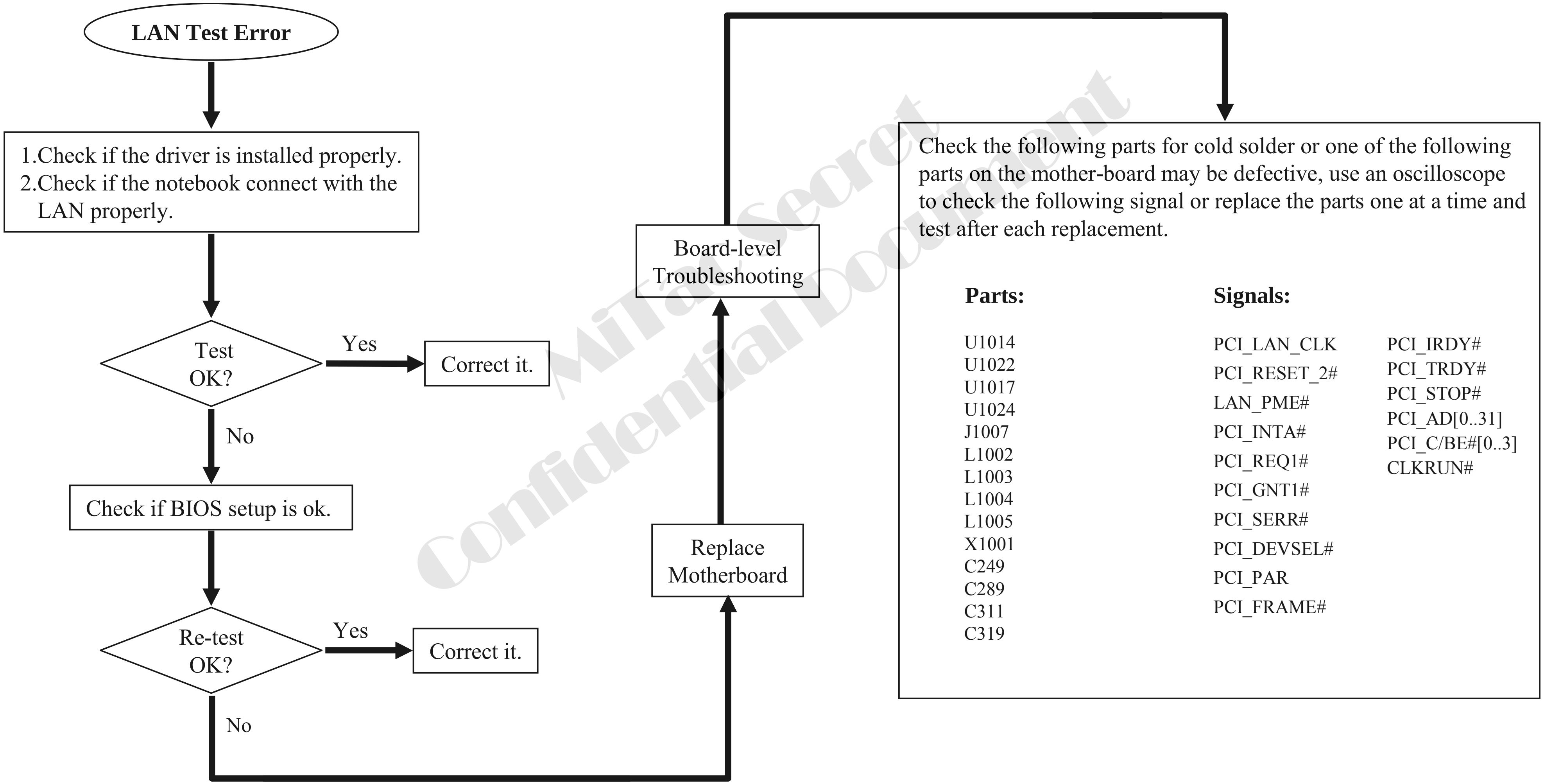
8.11 LAN Test Error(1)

An error occurs when a LAN device is installed.


+2.5V
AVDDL
R271
0
C326
0.1U
C332
0.1U
C1121
0.1U
C333
0.1U
R1220
0
3,7,20
16
+3V
R315
3.6K
U1024
AT93C46A
+3V
106
GLAN_ECS
111
GLAN_ECK
109
GLAN_EDI
108
GLAN_EDO
CS
SK
DI
DO
VCC
GND
P24
C1159
0.1U
C311
0.01U
R255
49.9
R259
49.9
R269
49.9
R264
49.9
C619
0.01U
U1014
South Bridge
M1573
P16
P17
PCI_ RESET_ 2#
From Page 31
27
+3V
R1388
10K
Q1038
2N7002
G
D
S
PME#
R1118
1K
LAN_PME#
31
PCI_INTA#, PCI_GNT1#, PCI_AD8
R1044,R287,R1144
0
25,29,46
PCI_PAR, PCI_REQ1#
26,30
PCI_SERR#, PCI_DEVSEL#
66,75
PCI_FRAME#, PCI_IRDY#, PCI_TRDY#, PCI_STOP#
61,63,67,69
PCI_AD[0..7,9..31], PCI_C/BE#[0..3]
R194
33
PCI_LAN_CLK
28
CLKRUN#
65
P24
U1022
LAN
Controller
RTL8110SBL
R1103
0
MDI2+
R1106
0
MDI2-
R1113
0
MDI3+
R1115
0
MDI3-
R1068
0
LAN_ TX+
R1076
0
LAN_ TX-
R1089
0
LAN_ RX+
R1091
0
LAN_ RX-
L1004
PLP1210S
L1005
PLP1210S
L1002
PLP1210S
L1003
PLP1210S
R238
49.9
R245
49.9
R218
49.9
R226
49.9
C289
0.01U
C249
0.01U
122
XTAL2
121
XTAL1
C1142
27P
Y1001
25MHZ
C1124
27P
P24
U1017
GLT019S
J1007
RJ45_ PJ1
RJ45_ PJ2
RJ45_ PJ3
RJ45_ PJ4
RJ45_ PJ5
RJ45_ PJ6
RJ45_ PJ7
RJ45_ PJ8
P24
RJ45 LAN Connector
R214
75
R234
75
R248
75
R262
75
C220
1000P

8.11 LAN Test Error(2)

An error occurs when a LAN device is installed.


LAN Test Error
1.Check if the driver is installed properly.
2.Check if the notebook connect with the LAN properly.
Test OK?
Yes
Correct it.
No
Check if BIOS setup is ok.
Re-test OK?
Yes
Correct it.
No
Replace Motherboard
Board-level Troubleshooting

Check the following parts for cold solder or one of the following parts on the mother-board may be defective, use an oscilloscope to check the following signal or replace the parts one at a time and test after each replacement.

Parts:

U1014
U1022
U1017
U1024
J1007
L1002
L1003
L1004
L1005
X1001
C249
C289
C311
C319

Signals:

PCI_LAN_CLK
PCI_RESET_2#
LAN_PME#
PCI_INTA#
PCI_REQ1#
PCI_GNT1#
PCI_SERR#
PCI_DEVSEL#
PCI_PAR
PCI_FRAME#
PCI_IRDY#
PCI_TRDY#
PCI_STOP#
PCI_AD[0..31]
PCI_C/BE#[0..3]
CLKRUN#

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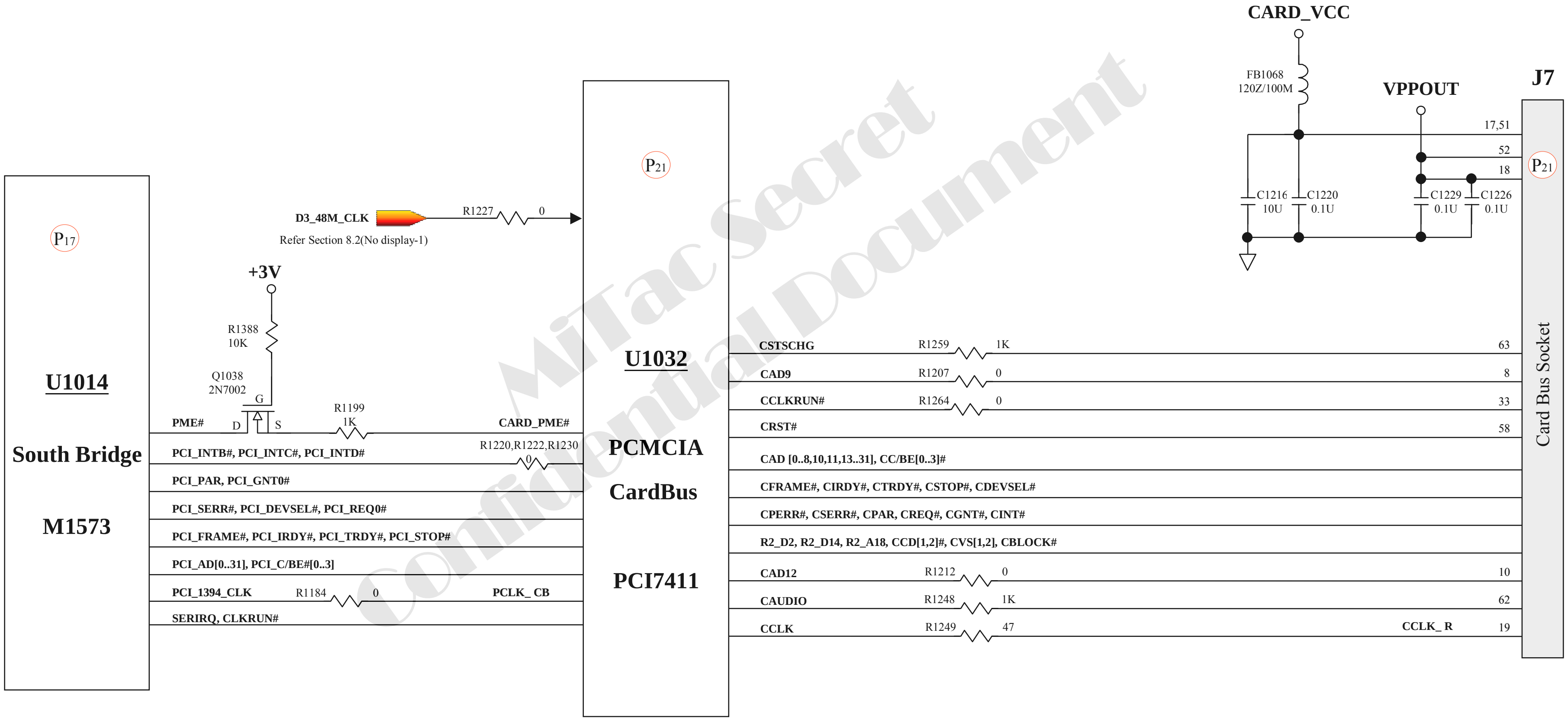
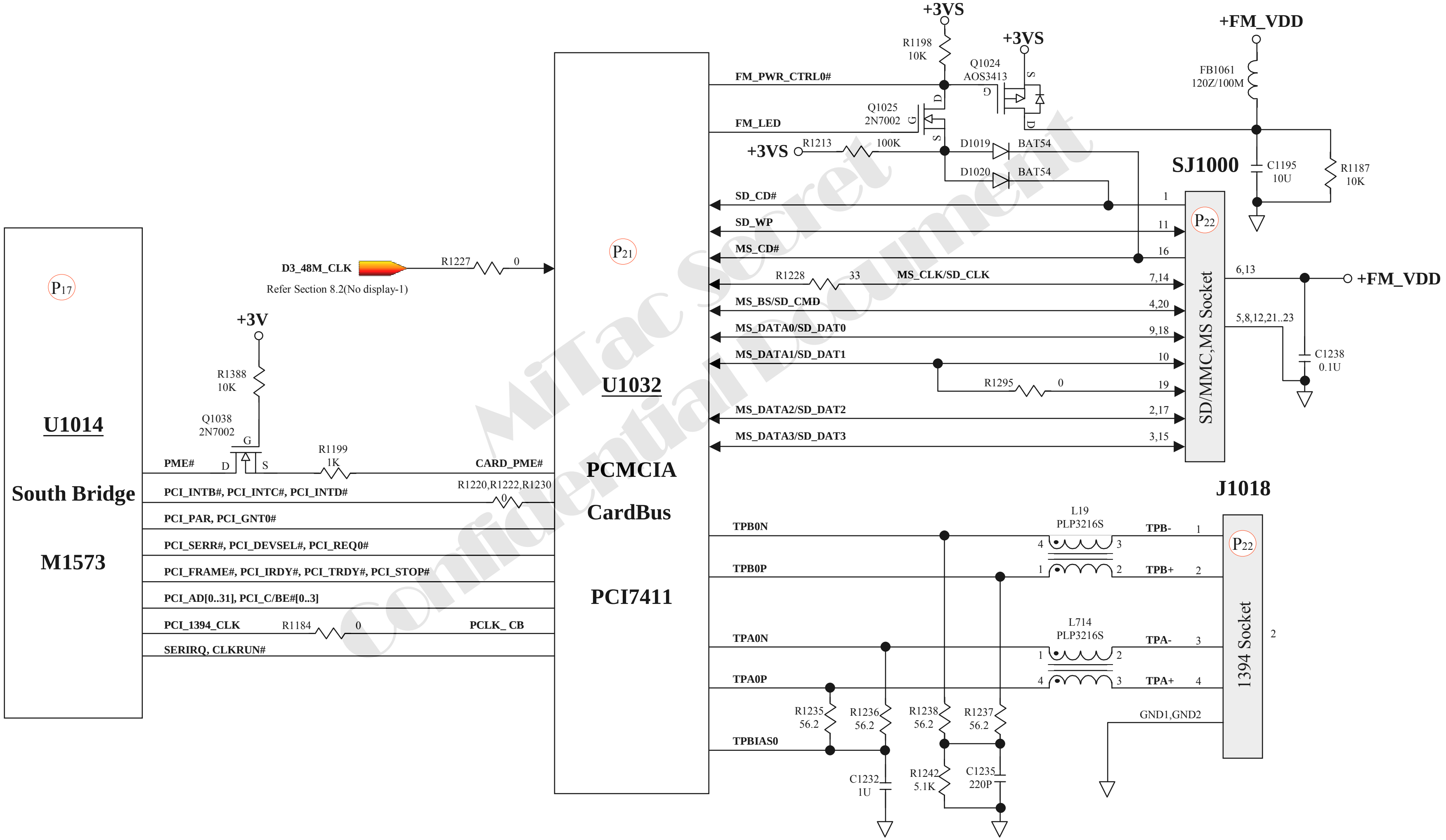
8.12 PC Card & Card Reader Socket Test Error(1)

An error occurs when a PC card device is installed.


CARD_VCC
FB1068
120Z/100M
VPPOUT
J7
17,51
52
18
P21
C1216
10U
C1220
0.1U
C1229
0.1U
C1226
0.1U
P21
P17
D3_48M_CLK
R1227
0
Refer Section 8.2(No display-1)
+3V
R1388
10K
Q1038
2N7002
G
D
S
R1199
1K
U1014
South Bridge
M1573
PME#
CARD_PME#
PCI_INTB#, PCI_INTC#, PCI_INTD#
R1220,R1222,R1230
0
PCI_PAR, PCI_GNT0#
PCI_SERR#, PCI_DEVSEL#, PCI_REQ0#
PCI_FRAME#, PCI_IRDY#, PCI_TRDY#, PCI_STOP#
PCI_AD[0..31], PCI_C/BE#[0..3]
PCI_1394_CLK
R1184
0
PCLK_ CB
SERIRQ, CLKRUN#
U1032
PCMCIA
CardBus
PCI7411
CSTSCHG
R1259
1K
63
CAD9
R1207
0
8
CCLKRUN#
R1264
0
33
CRST#
58
CAD [0..8,10,11,13..31], CC/BE[0..3]#
CFRAME#, CIRDY#, CTRDY#, CSTOP#, CDEVSEL#
CPERR#, CSERR#, CPAR, CREQ#, CGNT#, CINT#
R2_D2, R2_D14, R2_A18, CCD[1,2]#, CVS[1,2], CBLOCK#
CAD12
R1212
0
10
CAUDIO
R1248
1K
62
CCLK
R1249
47
CCLK_ R
19
Card Bus Socket

8.12 PC Card & Card Reader Socket Test Error(2)

An error occurs when a Card Reader device is installed.



U1014
P17
South Bridge
M1573
U1032
P21
PCMCIA
CardBus
PCI7411
SJ1000
P22
SD/MMC,MS Socket
J1018
1394 Socket
D3_48M_CLK
Refer Section 8.2(No display-1)
R1227 0
+3V
R1388 10K
Q1038 2N7002
G D S
R1199 1K
PME#
CARD_PME#
PCI_INTB#, PCI_INTC#, PCI_INTD#
R1220,R1222,R1230 0
PCI_PAR, PCI_GNT0#
PCI_SERR#, PCI_DEVSEL#, PCI_REQ0#
PCI_FRAME#, PCI_IRDY#, PCI_TRDY#, PCI_STOP#
PCI_AD[0..31], PCI_C/BE#[0..3]
PCI_1394_CLK
R1184 0
PCLK_ CB
SERIRQ, CLKRUN#
+3VS
R1198 10K
+3VS
Q1024 AOS3413
Q1025 2N7002
FM_PWR_CTRL0#
FM_LED
+3VS
R1213 100K
D1019 BAT54
D1020 BAT54
+FM_VDD
FB1061 120Z/100M
C1195 10U
R1187 10K
SD_CD# 1
SD_WP 11
MS_CD# 16
R1228 33
MS_CLK/SD_CLK 7,14
MS_BS/SD_CMD 4,20
MS_DATA0/SD_DAT0 9,18
MS_DATA1/SD_DAT1 10
R1295 0 19
MS_DATA2/SD_DAT2 2,17
MS_DATA3/SD_DAT3 3,15
6,13
+FM_VDD
5,8,12,21..23
C1238 0.1U
L19 PLP3216S
TPB0N
TPB- 1
TPB0P
TPB+ 2
L714 PLP3216S
TPA0N
TPA- 3
TPA0P
TPA+ 4
2
GND1,GND2
R1235 56.2
R1236 56.2
R1238 56.2
R1237 56.2
TPBIAS0
C1232 1U
R1242 5.1K
C1235 220P

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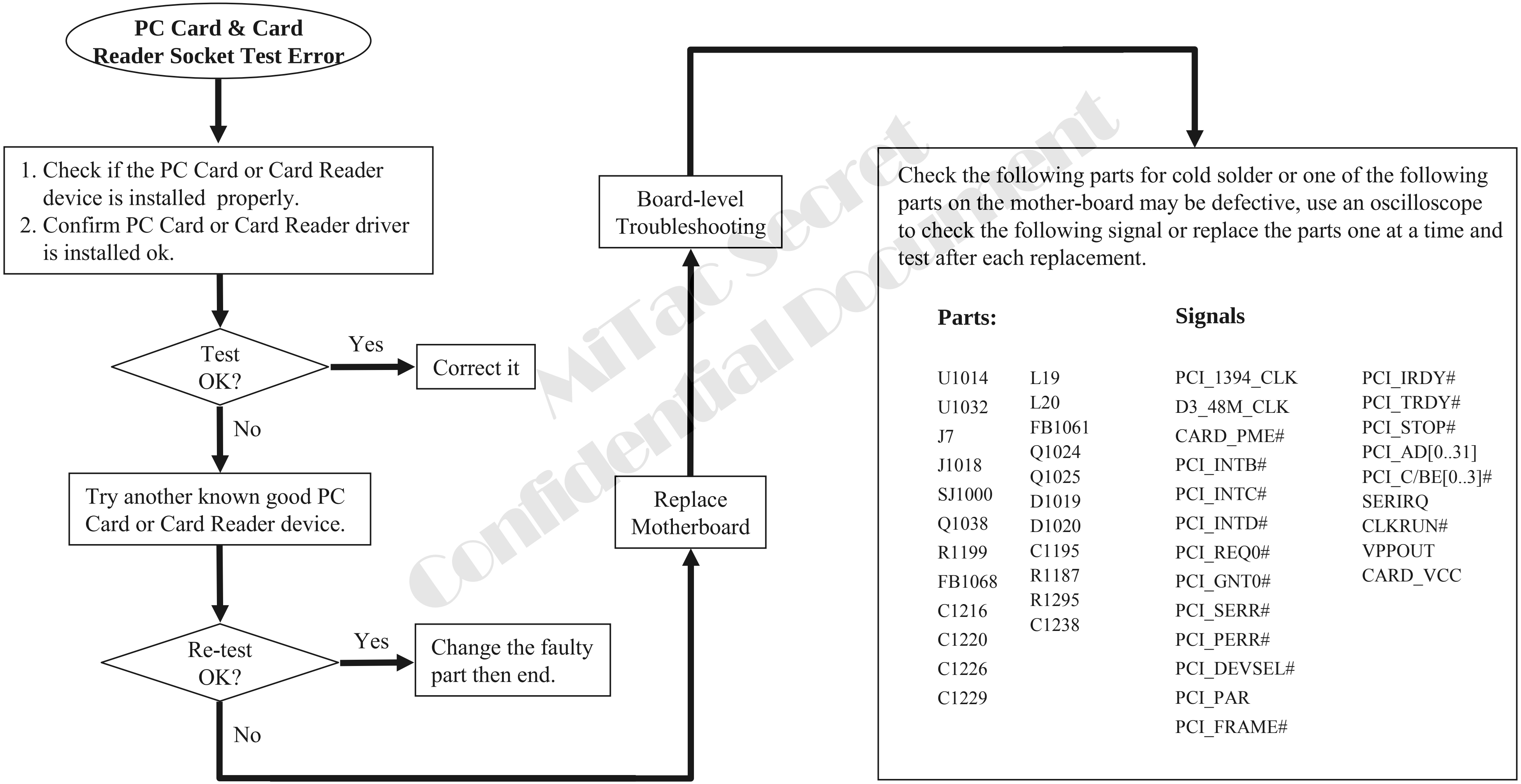
8.12 PC Card & Card Reader Socket Test Error(3)

An error occurs when a PC card or SD Card device is installed.


PC Card & Card Reader Socket Test Error
Test OK?
Yes
Correct it
No
Re-test OK?
Yes
No
Replace Motherboard
Board-level Troubleshooting

1. Check if the PC Card or Card Reader device is installed properly.
2. Confirm PC Card or Card Reader driver is installed ok.

Try another known good PC Card or Card Reader device.

Change the faulty part then end.

Check the following parts for cold solder or one of the following parts on the mother-board may be defective, use an oscilloscope to check the following signal or replace the parts one at a time and test after each replacement.

Parts:

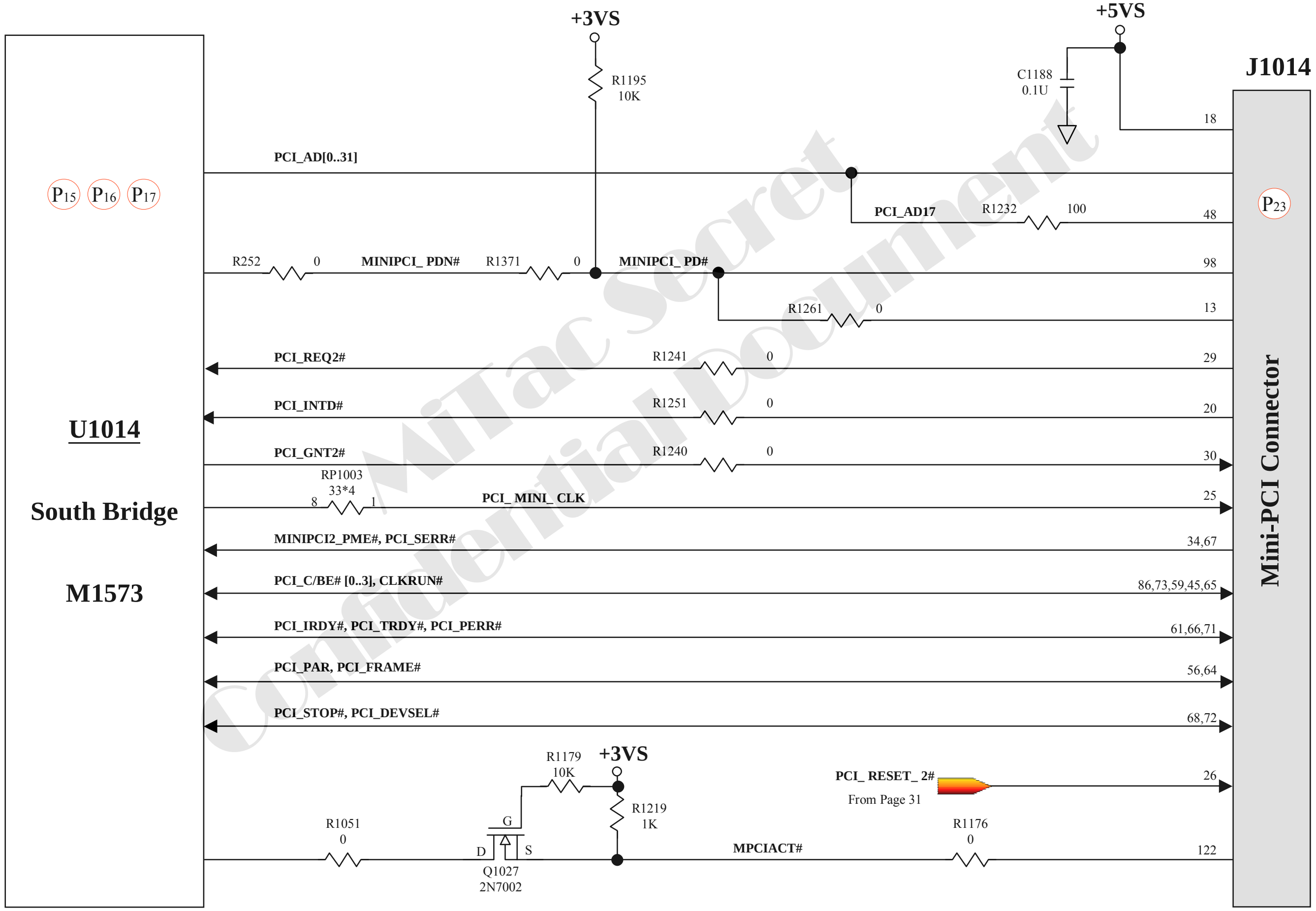
U1014
U1032
J7
J1018
SJ1000
Q1038
R1199
FB1068
C1216
C1220
C1226
C1229
L19
L20
FB1061
Q1024
Q1025
D1019
D1020
C1195
R1187
R1295
C1238

Signals

PCI_1394_CLK
D3_48M_CLK
CARD_PME#
PCI_INTB#
PCI_INTC#
PCI_INTD#
PCI_REQ0#
PCI_GNT0#
PCI_SERR#
PCI_PERR#
PCI_DEVSEL#
PCI_PAR
PCI_FRAME#
PCI_IRDY#
PCI_TRDY#
PCI_STOP#
PCI_AD[0..31]
PCI_C/BE[0..3]#
SERIRQ
CLKRUN#
VPPOUT
CARD_VCC

8.13 Mini-PCI Socket Test Error(1)

An error occurs when a PC card device is installed.


+3VS
+5VS
J1014
R1195
10K
C1188
0.1U
18
PCI_AD[0..31]
P15
P16
P17
P23
PCI_AD17
R1232
100
48
R252
0
MINIPCI_ PDN#
R1371
0
MINIPCI_ PD#
98
R1261
0
13
PCI_REQ2#
R1241
0
29
PCI_INTD#
R1251
0
20
U1014
PCI_GNT2#
R1240
0
30
RP1003
33*4
8
1
PCI_ MINI_ CLK
25
South Bridge
MINIPCI2_PME#, PCI_SERR#
34,67
Mini-PCI Connector
M1573
PCI_C/BE# [0..3], CLKRUN#
86,73,59,45,65
PCI_IRDY#, PCI_TRDY#, PCI_PERR#
61,66,71
PCI_PAR, PCI_FRAME#
56,64
PCI_STOP#, PCI_DEVSEL#
68,72
R1179
10K
+3VS
PCI_ RESET_ 2#
26
From Page 31
R1219
1K
R1051
0
G
D
S
Q1027
2N7002
MPCIACT#
R1176
0
122

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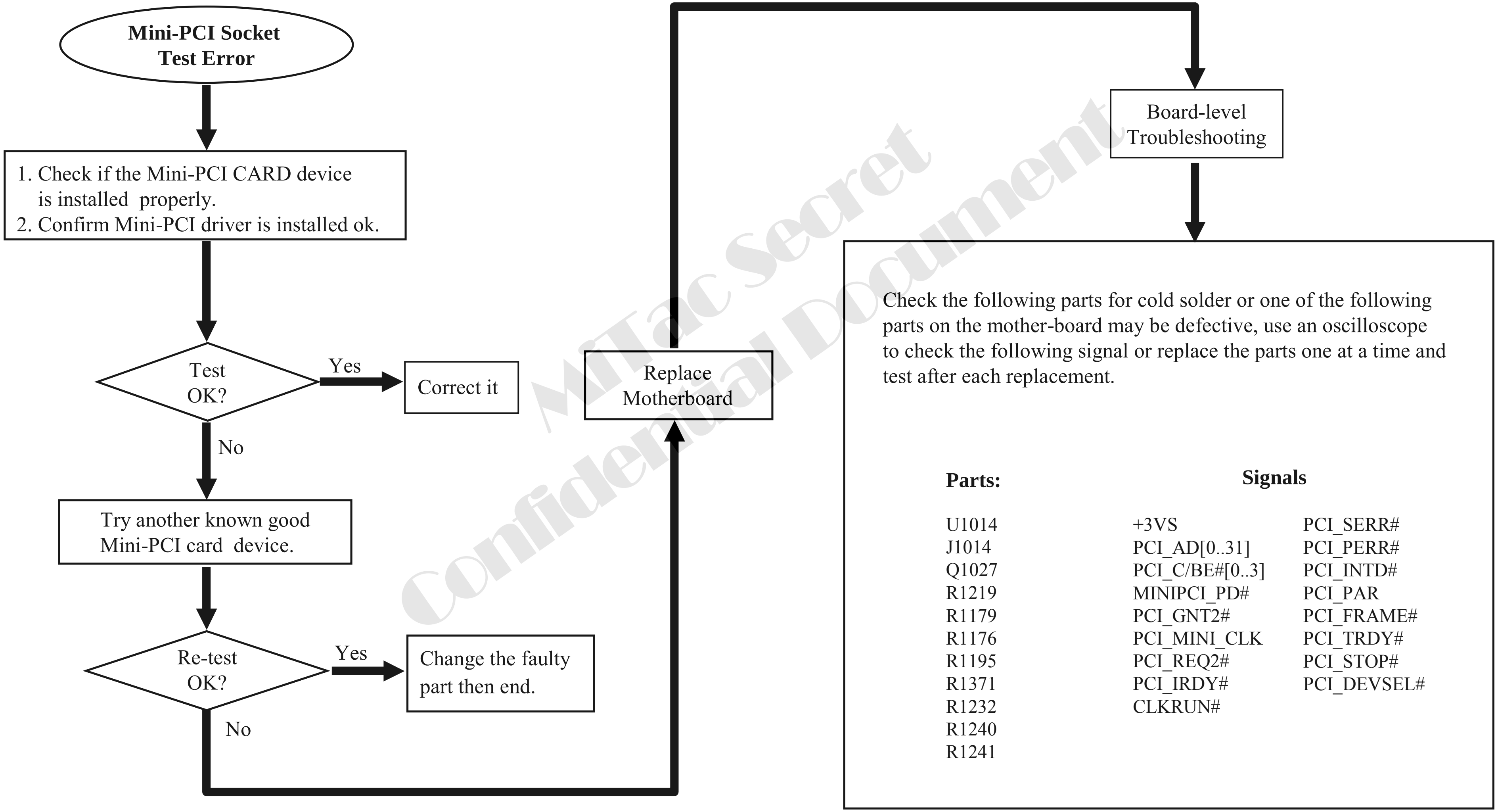
8.13 Mini-PCI Socket Test Error(2)

An error occurs when a PC card device is installed.


Mini-PCI Socket
Test Error
1. Check if the Mini-PCI CARD device is installed properly.
2. Confirm Mini-PCI driver is installed ok.
Test OK?
Yes
Correct it
No
Try another known good Mini-PCI card device.
Re-test OK?
Yes
Change the faulty part then end.
No
Replace Motherboard
Board-level Troubleshooting

Check the following parts for cold solder or one of the following parts on the mother-board may be defective, use an oscilloscope to check the following signal or replace the parts one at a time and test after each replacement.

Parts:

U1014
J1014
Q1027
R1219
R1179
R1176
R1195
R1371
R1232
R1240
R1241

Signals

+3VS
PCI_AD[0..31]
PCI_C/BE#[0..3]
MINIPCI_PD#
PCI_GNT2#
PCI_MINI_CLK
PCI_REQ2#
PCI_IRDY#
CLKRUN#

PCI_SERR#
PCI_PERR#
PCI_INTD#
PCI_PAR
PCI_FRAME#
PCI_TRDY#
PCI_STOP#
PCI_DEVSEL#

9. Spare Parts List(1)

Part Number	Description	Location(S)
442686800003	AC ADPT ASSY;ACBEL 90W API 3AD05	
361400003030	ADHESIVE;ABS+PC PACK,G485,CEMIDAIN	
361400003005	ADHESIVE;HEAT,TRANSFER,HTA-48(W)	
541668680001	AK; MAX, 8317	
346686800020	AL-SHEET;ASSY,TOP SHIELDING,8317	
422686800002	ANTENNA;WIRELESS,BLUE TEETH,LCD,JEM	
422686800003	ANTENNA;WIRELESS,BLUE TEETH,LCD,MPT	
441686800001	BATT ASS'Y;11.1V,6.6AH,LI,9-CELLS,PANASO	
441686800004	BATT ASSY;11.1V/6.6AH,LI,PANSONIC,9CELL	
338000000019	BATTERY HOLDER;CR2032,86003-0200	BT1000
338530010005	BATTERY;LI,3V/220MAH,CR2032	BT1000
340686800039	BEZEL ASSY;COMBO,KME,UJDA 760 ,8317	
413000021061	BFM-MEDION;LCD,LP171WX2-A4,TFT,17",W	
274011000405	BFM-SC,XTAL;10M,30PPM,12PF,8*4.5,2P,SMT	
221686840001	BOX, AK, MAX, 8317	
342672200010	BRACKET;CD-ROM,8500	
342686800004	BRACKET;UP-LCD,8317	
342676400003	BRACKET-REAR,CDROM,APOLLON	
422686800006	CABLE ASSY;LCD,DDC,COMAX,8317	
422686800010	CABLE ASSY;LCD,DDC,MPT,8317	
422686800001	CABLE ASSY;MDC,COMAX,8317	
422686800008	CABLE ASSY;MDC,MPT,8317	
272105102422	CAP; 1000P,CR, 50V,+/-10%, 0402,X7R, SMT	C1019,C1025,C1144
272101220402	CAP; 22P, 10V, 5%, 0402, NPO, SMT	C1015,C110,C1137,C1138
272105689404	CAP; 6.8P, CR, 50V, 5%, 0402,NPO, SMT	C170,C188,C194,C196

Part Number	Description	Location(S)
627207510232	CAP;.001U,CR,50V,5% ,0603,X7R,SMT,PRC	C13
272075103403	CAP;.01U ,50V,10%,0603,X7R,SMT	C20,C21,C22
272075103403	CAP;.01U ,50V,10%,0603,X7R,SMT	C14
272105103702	CAP;.01U ,50V,+80-20%,0402,SMT	C1077,C1093,C1106,C1113
272073103401	CAP;.01U ,CR,25V ,10%,0603,X7R,SMT	
272073103401	CAP;.01U ,CR,25V ,10%,0603,X7R,SMT	C1405
272075103401	CAP;.01U ,CR,50V ,10%,0603,X7R,SMT	PC1,PC1000,PC15,PC21
272073103041	CAP;.01U,25V,10%,0603,X7R,SMT	C17
272072223401	CAP;.022U,16V ,10%,0603,X7R,SMT	C1400
272005273402	CAP;.027U,50V,10%,0805,X7R,SMT	C11
272075104701	CAP;.1U ,50V,+80-20%,0603,Y5V,SMT	C1261,C1269,C1460,C315
272075104701	CAP;.1U ,50V,+80-20%,0603,Y5V,SMT	C1416
272075104703	CAP;.1U ,50V,+80-20%,0603,Y5V,SMT,PRC	C24,C26,C3,C4,C5,C6
272102104401	CAP;.1U ,CR,10V,10%,0402,X5R,SMT	C2,C4
272102104401	CAP;.1U ,CR,10V,10%,0402,X5R,SMT	C100,C1004,C1005,C101
272072104402	CAP;.1U ,CR,16V,10%,0603,X7R,SMT	C12
272072104402	CAP;.1U ,CR,16V,10%,0603,X7R,SMT	PC17,PC41,PC80,PC87
272102104704	CAP;.1U ,16V,+80-20%,0402,Y5V,SMT	C1152,C1153,C190,C199
272005104402	CAP;.1U ,50V,+/-10%,0805,X7R,SMT	PC1016,PC1017,PC1029
272102224701	CAP;.22U ,10V ,+80-20%,0402,Y5V,SM	C1130,C1151,C1168
272071332401	CAP;.33U ,10V ,10%,0603,X7R,SMT	C1274,C1279,C1280,C1466
272072474501	CAP;.47U ,16V ,20%,0603,Y5V,SMT	C534
272072474701	CAP;.47U ,16V,+80-20%,0603,Y5V,SMT	C1,C23,C28
272002474401	CAP;.47U ,CR,16V ,10%,0805,X7R,SMT	C13,C14
272101224403	CAP;0.22U,10V,+80%/-20%,0402,Y5V,SMT	C1090,C1091,C1098,C1101

9. Spare Parts List(2)

Part Number	Description	Location(S)
272030102401	CAP;1000P,2KV,10%,1808,X7R,SMT	C220
272030102415	CAP;1000P,CR,3KV,10%,1808,X7R,SMT	C1000,C1001,C1002,C1003
272105102408	CAP;1000P,CR,50V,10%,0402,X7R,SMT	C575
272075102403	CAP;1000P,CR,50V,10%,0603,X7R,SMT	C308,PC10,PC102,PC104
272105101402	CAP;100P ,50V ,+ -10%,0402,NPO,SMT	C1071,C1289,C1290,C1291
272105101401	CAP;100P ,50V ,5%,0402,COG,SMT	C1420,C1421,C1424,C1425
272991107502	CAP;100u,6.3V,20%,18m,SMT,MASTUSHITA	C1066,C1281,C1488,C561
272105100303	CAP;10P ,CR,50V ,5%,0402,NPO,SMT	C1277,C778,C92,C93,C94
272075100302	CAP;10P ,CR,50V ,5%,0603,NPO,SMT	C1078,C1079
272015400401	CAP;10P*4,8P,50V,10%,1206,NPO,SMT	CP1,CP2
272011106407	CAP;10U,10V,+/-10%,1206,X5R,SMT,AVX	PC101,PC1021,PC1028
272001106703	CAP;10U,10V,+80-20%,0805,Y5V,SMT,YAGEO	C1006,C1007,C1008,C1009
272013106502	CAP;10U,25V,+/-20%,1206,X5R,SMT	PC1009,PC1010,PC1011
272023106506	CAP;10U,25V,+-20%,1210,X5R,SMT,only HolySt	C3
272001106702	CAP;10U,6.3V,+- 20%,0805,X5R,SMT	C1,C3
272001106702	CAP;10U,6.3V,+- 20%,0805,X5R,SMT	PC99
272075120301	CAP;12P ,CR,50V ,5% ,0603,NPO,SMT	C1207,C1222
272075152401	CAP;1500P,CR,50V,10%,0603,X7R,SMT	PC55,PC91
272073151301	CAP;150P ,CR,25V,5% ,0603,NPO,SMT	PC1020
272010151331	CAP;150PF,2KV,5%1206,NPO,SMT,only HolySt	C1
272431157507	CAP;150U ,TPC,6.3V,20%,H1.9,7343	C1018,C1024,C1154,C1155
272431157509	CAP;150U,KOCAP,6.3V,20%,7343,SMT	PC1051,PC1054
272075181301	CAP;180P ,50V ,5% ,0603,NPO,SMT	C20
272075181301	CAP;180P ,50V ,5% ,0603,NPO,SMT	PC32,PC34
272001105403	CAP;1U ,10%,10V ,0805,X7R,SMT	C1042,PC1026,PC1074

Part Number	Description	Location(S)
272071105701	CAP;1U ,CR,10V ,80-20%,0603,Y5V	C1013,C1020,C1026,C1031
272071105701	CAP;1U ,CR,10V ,80-20%,0603,Y5V	C1418,C1419,C1422,C1423
272012105702	CAP;1U ,CR,16V ,+80-20%,1206,Y5V	PC1073
272003105401	CAP;1U ,CR,25V ,10%,0805,X7R,SMT	PC1052
272002105701	CAP;1U ,CR,16V ,-20+80%,0805,Y5V,SMT	PC1013
272071105403	CAP;1U ,10V ,10%,0603,X5R,SMT	C1273,C1463,C33,C38,C567
272073105401	CAP;1U, CR, 25V ,10%, 0603 ,X5R, SMT	C2,C4,C8
272002225701	CAP;2.2U ,CR,16V ,+80-20%,0805,Y5V	C1065,C1190,C1233,C161
272003225701	CAP;2.2U ,CR,25V,+80-20%,Y5V,0805,SMT	C5
272071225401	CAP;2.2U ,CR,6.3V ,10%,0603,X5R,SMT	C10
272071225401	CAP;2.2U ,CR,6.3V ,10%,0603,X5R,SMT	C1045,C141
272003225702	CAP;2.2U,CR,25V,+80-20%,0805 ,Y5V,SMT,PWR	
272105200401	CAP;20P ,50V,+-10%,0402,SMT	C1114
272105222501	CAP;2200P,50V ,+/-20%,0402,X7R,SMT	C1012,C145,C28,C29,C34
272075222401	CAP;2200P,50V ,10%,0603,X7R,SMT	C6
627207522141	CAP;220P ,50V ,10%,0603,X7R,SMT	C25
272105221403	CAP;220P ,CR,50V ,10%,0402,X7R,SMT	C1235
272431227527	CAP;220U,4V,+/-20%,H2.8,PT,NCC	
272431227537	CAP;220U,4V,7343,T520V227M004ASE025,-/+20	PC1040,PC1041,PC1045
272030220302	CAP;22PF,3KV,5%,1808,NPO,SMT,only HolySto	C7
272011226401	CAP;22U,6.3V,+-20%,1206,X5R,SMT	PC1076,PC52,PC68
272105271403	CAP;270P ,50V,+-10%,0402,X7R,SMT	C10,C11,C9
272105270303	CAP;27P ,50V ,5%,0402,COG,SMT	C1112,C1120,C1124,C1142
272105332402	CAP;3300P,50V,10%,0402,SMT	C168
272105331301	CAP;330P ,50V,5%,0402,NPO,SMT	C1,C2,C3

8317 N/B Maintenance

9. Spare Parts List(3)

Part Number	Description	Location(S)
272075330303	CAP;33P ,50V ,5%,NPO,0603,SMT	C9
272073392401	CAP;3900P,50V,10%,0603,X7R,SMT	C203,C214
272013475402	CAP;4.7U ,25V ,10%,1206,X5R,SMT,PANASONI	PC1006,PC1007,PC1012
272001475701	CAP;4.7U ,CR,10V ,+80-20%,0805,Y5V,SMT	C1035,C1036,C1056,C1059
272002475702	CAP;4.7U ,CR,16V ,+80-20%,Y5V,0805,SMT ;PW	C2
272075472701	CAP;4700P,50V ,+ -20%,0603,X7R,SMT	PC25,PC46,PC63
272073472301	CAP;4700P,CR,50V ,5% ,0603,X7R,SMT	C15,C19
272431477508	CAP;470U,2V5,7343,T520V477M2R5ASE012,-/+2	PC1039,PC1058,PC1059,PC1060
272075470401	CAP;47P ,50V ,10%,0603,COG,SMT	PC1022,PC1025
221686800002	CARD BOARD;FRAME,PALLET,MAX,8317	
221686800003	CARD BOARD;T/B,PALLET,MAX,8317	
221686800005	CARTON,MEDION-MDxxxx,8317	
221686800001	CARTON;DOUBLE PACKING,MAX,8317	
451686800002	CASE KIT; Max ID, 8317	
273000500096	CHOCK COIL;4.7UH.20mOHM,25%,4.5A	PL1006
273000500251	CHOKE COIL;0.5UH,+-20%,40A,6.5MM,SMT	PL1010,PL1011
273000111002	CHOKE COIL;120OHM/100MHZ,20%,3216	L19,L20
273000500115	CHOKE COIL;400uH MIN,120mΩ MAX;TWI	L1000,L1001
273000150313	CHOKE COIL;90OHM/100MHZ,20%,2012,TDK	L10,L15,L16,L17,L18,L5
273000150352	CHOKE COIL;QXC24CD121U,120OHM/100MHZ	L1,L2,L3,L4
273000150351	CHOKE COIL;QXC24CD900U,90OHM/100MHZ,	L1002,L1003,L1004,L1005
361200001018	CLEANNER;YC-336,LIQUID,STENCIL/PCB SMT	
331000000302	CON HOLDER;PCMCIA,UP,STANDOFF 0.0 MM	
291000005011	CON,MOLD,MA,50P,1MM,H4.55MM,R/A,ALL	J2
291000002302	CON;3 IN 1 REVERSE TYPE,23P,SMT,MDR019-2	SJ1000

Part Number	Description	Location(S)
331000007019	CON;BATTERY,7P,2.5MM,25032A-07G1,8640,P	
331000007005	CON;BATTERY,7P,2.5MM,H9,R/A,DIP,SUYIN	PJ1001
331000015020	CON;D-SUB,15P,R/A,VGA,070549FR015S202CU	J1000
331000000322	CON;DVI,SUYIN,070939FR024S102PA	J1001
291000151215	CON;FPC/FFC,12P,1MM,R/A,ENTERY,6701-12,	SJ1
291000143016	CON;FPC/FFC,30P,0.8MM,ENTERY,1121N-T030	J1017
291000012411	CON;HDR,12P*1,1.25,ACES,SMT	CN1
291000022013	CON;HDR,FM,20P,1MM,R/A.ENTERY,3753-20,	J2
291000014422	CON;HDR,FM,22P*2,2MM,ALLOP,C17897	J1
291000023012	CON;HDR,FM,30P,1MM,R/A.ENTERY,3753-30,	J3
331030050020	CON;HDR,FM,50P,0.8MM,H4.8MM,ALLTOP,C	J1008
291000020219	CON;HDR,MA,2P*1,1.25MM,H2.57,R/A,SMT,E	J22,J8
291000020222	CON;HDR,MA,2P*1,1.25MM,H4.2,ST,SMT,3801	J1005
291000010209	CON;HDR,MA,2P*1,1.25MM,H4.2,ST,SMT,AC	
291000000203	CON;HDR,MA,2P*1,3.5MM,R/A,SMT,SM02B,o	CN2
291000010311	CON;HDR,MA,3P*1,1.25MM,H4.2,ST,3801-03-1	J1006
291000020415	CON;HDR,MA,4P*1,1.25MM,ST,SMT,3801Y-T0	CN1001
291000010417	CON;HDR,MA,4P,1.25MM,H3.5MM,R/A,SMT,	J1
291000256843	CON;IC CARD,68P,UP,STANDOFF 0.0 MM ,M	J7
331000004086	CON;IEEE1394,MA,4P,0.8MM,REVERSE TYPE,	J1018
331870007012	CON;MINI DIN,7P,W-GROUND,YELLOW,ALL	CN1000
291000005010	CON;MOLD,FM,50P,1MM,H4.55MM,R/A,ALL	J1016
291000810408	CON;PHONE JACK,4P,1.016MM,ALLTOP,C101	J1003
291000810808	CON;PHONE JACK,8P,H=12.59,R/A,RJ45,TETR	J1007
291000000038	CON;PIN HEADER,SMT,2.0*2.0,SUYIN,200109	J1021

9. Spare Parts List(4)

Part Number	Description	Location(S)
291000000039	CON;PIN HEADER,SMT,SUYIN,200189FA012G	J1024
331910002006	CON;POWER JACK,2P,20VDC,5A,DIP	PJ1000
331840010008	CON;STEREO JACK,10P,W/SPDIF,R/A,GP1FD3	J1022
331840005060	CON;STEREO JACK,5P,W3.5,SINGATRON,2SJ-	J1023
331840005063	CON;STEREO JACK,6P,LIME,933100000268,MP	J1020
331840005064	CON;STEREO JACK,6P,PINK,933100000267,MP	J1019
331000008089	CON;USB,FM,H15.64,R/A,4P*2,SUYIN,2522AY-	J1002,J1004,J1010
291000000216	CON;WAFER,2P,1.2MM,R/A,ENTERY,3703-02,S	J4
342503200003	CONTACT PLATE;W4L18T0.15,7521/GRAMPU	
342503400007	CONTACT PLATE;W5L45T0.13 ,1/3T,7170LI,PR	
342503400006	CONTACT PLATE;W5L45T0.13,7170LI,PRC	
342685700001	CONTACT PLATE;W5L45T0.13mm,8050QD,PW	
342677000019	CONTACT PLATE;W5L76T0.13 ,1/3T,LYNX,PR	
340686800003	COVER ASSY;CPU,8317	
340686800002	COVER ASSY;HDD,8317	
340686800013	COVER ASSY;KB,8317	
340686800015	COVER ASSY;LCD,8317	
340686800012	COVER ASSY;TOP,8317	
340686800037	COVER ASSY;VGA,8317	
344686800006	COVER;AUDIO,8317	
344677000022	COVER;BATTERY,LYNX	
451686800007	CPU KITS ;8317	
323768090008	DDR SODIMM MODULE;DDR333 512MB,HYS6	
331660020013	DIMM SOCKET;DDR STANDARD,200P,0.6MM	J1015
291000622021	DIMM SOCKET;DDR,STD,200P,0.6MM,H9.2,SM	J1012

Part Number	Description	Location(S)
288114148001	DIODE;1N4148,SHTKY,SOD123,SMT	D1016,D1017
288100340008	DIODE;B340LA,40V,3A,SMA,DIODES,SMT	PD1003,PD1005,PD1014
288100032013	DIODE;BAS32L,VRRM75V,MELF,SOD-80	D1011,PD1008
288100054001	DIODE;BAT54,30V,200mA,SOT-23	D1010,D1014,D1019
288100541002	DIODE;BAT54ALT1,COM. ANODE,SOT-23	D1008,D1009,D1041
288100054002	DIODE;BAT54C,SCHOTTKY DIODE,SOT23	D1022
288100701002	DIODE;BAV70LT1,70V,225MW,SOT-23	D5,PD1001,PD1002
288100099001	DIODE;BAV99,70V,450MA,SOT-23	D1,D2
288100099001	DIODE;BAV99,70V,450MA,SOT-23	PD1004,PD1007
288100056012	DIODE;BAW56,75V,300MA,SOT-23,DIODES	PD1,PD1010,PD5
288105520001	DIODE;BZV55-C20,ZENER,5%,SOD-80,500mW	PD1009
288105524003	DIODE;BZV55-C24,ZENER,5%,SOD-80,500mW	PD1000
288105524002	DIODE;BZV55-C2V4,ZENER,5%,SOD-80,500MW	PD1011,PD1012,PD1015
288105543001	DIODE;BZV55-C4V3,ZENER,5%,SOD-80,500MW	PD2
288105556001	DIODE;BZV55-C5V6,ZENER,5%,SOD-80,500mW	D1048,D7,PD3
288100603002	DIODE;ESD,V-PORT-0603-100M-V05,15KV,10PF	D1051,D1052
288101040005	DIODE;MBRD1040CT 40V,10A,VF=0.53V,TO252	
288104148001	DIODE;RLS4148,200MA,500MW,MELF,SMT	
288100024001	DIODE;RLZ2.4B,ZENER,400mW,LL-34	PD6
288100033002	DIODE;RLZ3.3B,3.3V,400MW,SMT	PD4
288100140008	DIODE;SCS140P,40V,1A,SECOS,SMT	PD1013,PD1017
288101040004	DIODE;SD1040CS 40V,10A,VF=0.55V,TO252	PD1006
288100056005	DIODE;UDZ5.6B,ZENER,5.6V,UMD2,SMT	ZD1,ZD2,ZD5
288100018003	DIODE;UDZS18B,ZENER,18V,SOD-323,SMT,PR	ZD3,ZD4
288105268001	DIODE;ZENER,BZT52C6V8, 7.2V,500mW,SOD12	D6

9. Spare Parts List(5)

Part Number	Description	Location(S)
344680900048	DUMMY CARD;PCMCIA,8050	
523410484014	DVD COMBO DRIVE; UJ-DA760,8X24X24X24X	
523468680004	DVD COMBO-ASSY;KME,UJDA 760,8317	
312271005357	EC;10U,25V,20%,RA,6.3*6.8,+105℃,SYO	PC1044,PC1049,PC1056
343685200001	EMI FINGER;3X2MM,H2.5,SME-0025RA,U-TEK	TP7,TP9
343685200006	EMI FINGER;4.5X2MM,H7,SME-0070RA,MAGI	TP15,TP4,TP8
227686800001	END CAP; MAX, L,8317	
227686800002	END CAP; MAX, R,8317	
481686800002	F/W ASSY;KBD CTRL,8317-G172	
481686800001	F/W ASSY;SYS/VGA BIOS,8317-G172	
273000150332	FERRIET CHIP;120OHM/100MHZ,2012,5A,MA	FB1007,FB1008,FB1009
273000150156	FERRIET CHIP;120OHM/100MHZ,2012,6A,MA	PL1000,PL1001,PL1002
273000610013	FERRITE ARRAY;120OHM100MHZ,3216,MAG	FA1,FA1000,FA2
273000130039	FERRITE CHIP;130OHM/100MHZ,1608,SMT	FB1,FB1000,FB1003,FB1006
273000150001	FERRITE CHIP;220OHM/100MHZ,2012,200mA,S	L1
273000130038	FERRITE CHIP;600OHM/100MHZ,1608,SMT	FB1074,FB1075,FB1076
273000130038	FERRITE CHIP;600OHM/100MHZ,1608,SMT	FB1087,FB1088,FB1089
273000610034	FERRITE CHIP;60OHM/100MHZ,1608,3A,SMT	FB1019,FB1023,FB1025
422686800007	FFC;TOUCH PAD,MPT,8317	
422686800012	FFC;TOUCH PAD,TENNRICH,8317	
346867700001	FILM;PROTECT FOR APOLLON BATTERY,210	
340686800006	FIN ASSY;BRIDGE,MPT,8317	
342600002110	FINGER;EMI GROUNDING SMD FINGER H=10.	TP2
288006102001	FIR;TFDU6102,SIDE/TOP VIEW,8P,SMT,VISHA	U41
335152000100	FUSE; THERMAL,SF91E-1/94℃,10A/250V,NEC;	

Part Number	Description	Location(S)
295000010013	FUSE;.75A/13.2V,POLY SWITCH,PTC,1812,SM	F1001
295000010048	FUSE;0.5A/15V,POLY SWITCH,SMD	SF1001,SF2
295000010014	FUSE;1.1A/6V,POLY SWITCH,PTC,SMD	F1002,F1003,F1008,F1011
295000010105	FUSE;1A,NORMAL,1206,SMT	F8
295000010057	FUSE;228R,139C',5A/250V,SMT,PRC	
295000010106	FUSE;2A,NORMAL,1206,SMT	F1009,F1010
295000010149	FUSE;FAST,1.5A,63VDC,1206,SMT,043301.5	F1
295000010135	FUSE;FAST,3A,32VDC,1206,SMT,PRC	F5
335152000062	FUSE;LR4-730,POLY SWITCH,PRC	
295000010077	FUSE;NANO,10A/32V,R451,SMT	F1005
295000010009	FUSE;NORMAL,5A/32VDC,3216,SMT	F1004
295000010163	FUSE;NORMAL,7A/24VDC,0433007,1206,LITTE	F1000,F1006,F1007,F3,F4
345686800018	GASKET；MB,COMPONENT SIDE,8317	
345686800031	GASKET；MB,USB,8317	
345686800022	GASKET;TOP COVER,8317	
345686800024	GASKET;USB CONNECTOR,8317	
523402379051	HDD DRIVE;40GB,2.5",MHT2040AT,V40+ FW0	
451686800001	HDD ME KIT;8317	
523468680008	HDD-ASSY;FUJITSU MHT2040AT V40+ ,8317	
340686800008	HEATSINK ASSY;AMD,AVC,8317	
340686800007	HEATSINK ASSY;AMD,MPT,8317	
340686800016	HINGE;L,LG,JARLLY，8317	
340686800025	HINGE;L,LG,SZS，8317	
340686800017	HINGE;R,LG,JARLLY，8317	
340686800024	HINGE;R,LG,SZS，8317	

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9. Spare Parts List(6)

Part Number	Description	Location(S)
340686800001	HOUSING ASSY;CASE,8317	
340686800014	HOUSING ASSY;LCD,8317	
451686800003	HOUSING KIT;8317	
344686800001	HOUSING;BATT,8317	
291000617542	IC SOCKET;AMD K8 BGA-PGA754-SKT,754P,S	U1016
284582140002	IC,H8S/2140B,KBD CTRL,TQFP,100P,SMT	U1025
286302220001	IC; TPS2220A,PCMCIA CTRL,SSOP24P	U1026
282574014004	IC;74AHC14,HEX INVERTER,TSSOP,14P	U1038,U16,U21
286407414001	IC;74AHC1G14GW, HEX INVERTING SCHIMTT	U1019
282574132001	IC;74AHCT1G32,SINGLE OR GAT,SOT23-5	U14
281474112003	IC;74HC1G125GW,3 STATE BUS BUFFER, 5 PIN	U5
281474112001	IC;74HC1G126,3 STATE BUS BUFFER, 5 PIN, PH	U6
282574032004	IC;74HC32,QUAD 2 I/P OR,TSSOP,14P	U1040
282574164002	IC;74VHC164,SIPO REGISTER,TSSOP,14P	U1023
284501032005	IC;ADM1032ARM-1,TEMPERATURE MTR,108	U1009
284500880008	IC;ALC880,AUDIO CODEC,LQFP48	U19
286308800022	IC;AME8800MEFT,0.3A,1.8V,REG,SOT89N,SMT	U1012
286308804002	IC;AME8804AEEY,ADJ,0.3A,LDO,SOT26,6P,SM	U1013
286308824002	IC;AME8824,0.3A,LDO REG.,SOT26	PU1017
286002040001	IC;BQ2040,GAS GAUGE,SO,16P,SMT	U3
324180786975	IC;CPU,AMD-K8,SEMPRON,62W,3000+,UPGA,	
283467540001	IC;EEPROM,M24C02-WMN6T,2K,SO8,SMT	U2
283467540001	IC;EEPROM,M24C02-WMN6T,2K,SO8,SMT	U1027,U1029
283467540002	IC;EEPROM,M93C46-WMN6T,64*16 BITS,SO8,	U1024
283468180001	IC;FLASH,512K*8,LPC & FWH,SST49LF004B,P	U1031

Part Number	Description	Location(S)
286369229301	IC;G692L293T,RESET CIRCUIT,2.93V,SOT143,SM	U1021
284595141001	IC;ICS951412,CTL CHIP FOR RS4800,TSSOP56	U1018
286306207001	IC;ISL6207CB,PWM DRIVER,SO8,SMT	PU1005,PU1016
286306227002	IC;ISL6227CA, PWM CONTROLLER SSOP,SMT	PU1003,PU7
286306559005	IC;ISL6559CR,MULTI-PHASE PWM CTL,32 LEA	PU6
286308282001	IC;IT8282M,SOP,16P	U20
286100393004	IC;LMV393,DUAL COMPARTOR,SSOP,8P	PU1004
286100822002	IC;LMV822,OP AMP,DUAL,CMOS,MSOP,8P,SM	U23
286302951015	IC;LP2951ACM,VOLTAGE REGULATOR,SO	U15
286303728002	IC;LTC3728LX,PWM CTRL,LTC,5X5 QFN,SMT	PU2
284101573001	IC;M1573 A1D, SUPER SOUTH BRIDGE, BGA,	U1014
286104173001	IC;MAX4173F,I-SENSE AMP,SOT23,6P	PU1000
286301414001	IC;MM1414,PROTECTION,TSOP-20A,PRC	U5
284507411001	IC;PCI7411,BGA,GHK,288P	U1032
284500480001	IC;RS480M A21,ATI RADEON,BGA,706P	U1005
284508110003	IC;RTL8110SBL,LQFP,128P	U1022
286300812002	IC;S-812C,DECECTOR,SOT-89,PRC	U1
286300431014	IC;SC431LCSK-.5,.5%,ADJ REG,SOT23	PQ4
284501162001	IC;SII1162,PANEL LINK TRANSMITTER,TSSO	U4
284183517002	IC;SIO,W83L517D-F,W/O FIR,LQFP,100P,SMT	U17
286300055001	IC;TC55,3.3V,250mA,REG.,SOT89	U1033
286300594001	IC;TL594C,PWM CONTROL,SO,16P	PU1001
286160114001	IC;TPA6011A4,AUDIO POWER AMPLIFIER,3W	U1034,U1041,U26
273000990167	INDUCTOR;10UH,30%,SPC-10039-100	PL1007
273000990054	INDUCTOR;10UH,D124C,+/-20%,TOKO,SMT	PL1009

9. Spare Parts List(7)

Part Number	Description	Location(S)
273000994035	INDUCTOR;2.5UH,30%,7.5A,SPC-10038-2R5	PL1005
273000990129	INDUCTOR;4.7UH,20%,D124C,H4.5,TOKO,SMT	PL1013
273000990250	INDUCTOR;4.7UH,30%,SPC-08045-4R7	PL1008,PL1014
346503100005	INSULATOR;5,BATTERY ASSY,7521Li	
346503200202	INSULATOR;BATT ASSY,ONE ROUND,BLAC,	
346677000030	INSULATOR;BATT ASSY,POLY,W30L64,LYNX	
346677000032	INSULATOR;BATT ASSY,THERMAL FUSE,LY	
346503400503	INSULATOR;BATT ASSY,W7L13,8175	
346677000031	INSULATOR;FOR 3 CELLS,SINGLE-FA,LYNX,P	
346677000009	INSULATOR;FOR 3CELL DOUBLE-FA,LYNX,P	
346686800012	INSULATOR;INVENTER,8317	
346686800022	INSULATOR;INVENTER,INFON,8317	
346686800021	INSULATOR;KB,8317	
346686800010	INSULATOR;MB-1,8317	
346686800017	INSULATOR;MB-1,INFON,8317	
346686800011	INSULATOR;MB-2,8317	
346686800018	INSULATOR;MB-2,INFON,8317	
346686800023	INSULATOR;SHIELDING,8317	
346677000028	INSULATOR;SINGLE-FA,FOR PCB-A,LYNX,PW	
346677000029	INSULATOR;SINGLE-FA,FOR PCB-B,LYNX,PW	
361400003003	JET-MELT ADHESIVES;3478-Q,5/8in*8in,PRC	
531068680001	KBD;UI,CHICONY MP-0375-005,8317	
242677000027	LABEL,AK BOX,LYNX	
242600000145	LABEL;10*10,BLANK,COMMON	
242600000145	LABEL;10*10,BLANK,COMMON	

Part Number	Description	Location(S)
242600000439	LABEL;25*6,HI-TEMP,COMMON	
242600000378	LABEL;27*7MM,HI-TEMP 260'C	
242668300028	LABEL;32*7MM,POLYESTER FILM,HOPE	
242668300017	LABEL;4*3MM,HI-TEMP,260'C,HOPE	
242668300017	LABEL;4*3MM,HI-TEMP,260'C,HOPE	
242683700006	LABEL;48*6mm,EMPTY,WHITE,MIO 136 BATT	
624200010140	LABEL;5*20,BLANK,COMMON	
624200010140	LABEL;5*20,BLANK,COMMON	
624200010140	LABEL;5*20,BLANK,COMMON	
242600000232	LABEL;6*6MM,GAL,BLANK,COMMON	
242600000313	LABEL;7*4MM,BLANK,COMMON,PRC	
242600000088	LABEL;BAR CODE,125*65,COMMON	
242686800001	LABEL;BATT,Li-ION,PANASONICI,9-CELLS,22	
242600000433	LABEL;BLANK,11*5MM,COMMON	
242600000452	LABEL;BLANK,7MM*7MM,PRC	
242600000452	LABEL;BLANK,7MM*7MM,PRC	
242669600005	LABEL;LOT NUMBER,RACE	
242600000001	LABEL;PAL,20*5MM,COMMON	
242678800019	LABEL;TRANSPARENT, ∮ 50, 8381-Medion	
344686800010	LATCH;FUNCTION,8317	
441686800016	LCD ASSY;17"W,LP171WX2,LG,8317,PANEL C	
451686800005	LCD ME KIT;LP171WX2,LG,17"W,8317	
297686800001	LCD SWICH?ASSY;?DT017-P11AA-A,T-MEC,8	
294011200221	LED;BLUE,H0.6,19-215SUBC/S280/TR8,SMT	LED1,LED2,LED3,LED4
294011200069	LED;GREEN,19-21VGC/TR8,LED_CL190,SMT,P	

9. Spare Parts List(8)

Part Number	Description	Location(S)
294011200034	LED;GREEN,H.8,0603,19-21VGC/TR,SMT	LED3,LED4,LED5,LED6
294011200043	LED;RE/GR,H0.8,L1.9,W1.6,19-22SRVGC	LED1,LED2
416268680005	LT PF;17"W,WXGA,LG,8317,NB PLATFORM,P	
526268681003	LTXXNON;8317ID1/W7W5/0F04D/1XUIX	
339115000046	MICROPHONE;-62dB+-2dB,D6.0*H2.7,FM-10B1	INT_MIC1
291000611257	MINIPCI SOCKET;124P,0.8MM,H=9.2mm,TYCO	J1014
346686800005	MYLAR;AMD 32BIT,8317	
346686800016	MYLAR;AMD 32BIT,INFON,8317	
344686800025	MYLAR;AMD 64BIT,8317	
344686800028	MYLAR;AMD 64BIT,INFON,8317	
291000152411	ON;FPC/FFC,24P,1MM,R/A,KBD,ENTERY,6902-	J5
286009910001	OZ9910S,CCFL CTRL ,SSOP-16	U2
461686800004	PACKING KIT;1-in-1 double packing ,MAX,831	
461686800002	PACKING KIT;8X17/11.1V,6.6AH,LI,PANSONIC	
224677830001	PALLET;COMPLEX,1140x900x120MM,8375P	
412687200001	PCB ASSY;D/A BD,DA-1A08-D02/8317,PWR	
412686300002	PCB ASSY;MDC,MDC56AZS2,Billionton	
316686800007	PCB;PWA-G172-8317,AUDIO BD, R01	R01
316686800002	PCB;PWA-G172-8317,MODEM BD , R01	R01
316686800001	PCB;PWA-G172-8317,MOTHER BD, R01	R01
316686800004	PCB;PWA-G172-8317,PATA HDD BD	R0B
316687200002	PCB;PWA-INVERTER BD (DA-1A08-D02)	R0C
316677000002	PCB;PWA-LYNX/BATTERY BD,PWR	
222686800002	PE BAG; L680xW345, 8317	
222672730001	PE BUBBLE BAG;200*240mm,AMM-9019	

Part Number	Description	Location(S)
222503220001	PE BUBBLE BAG;BATTERY,GRAMPUS	
222686800001	PROTECTING COLTH;LCD/KB, 8317	
411686800018	PWA;PWA-8X17/BATT PANSONIC,9CELLS,B	
411686800019	PWA;PWA-8X17/BATT PANSONIC,9CELLS,G	
411686800031	PWA;PWA-G172-8317,AUDIO BD,SMT	
411686800004	PWA;PWA-G172-8317,MODEM BD	
411686800006	PWA;PWA-G172-8317,MODEM BD,SMT	
411686800005	PWA;PWA-G172-8317,MODEM BD,T/U	
411686800001	PWA;PWA-G172-8317,MOTHER BD	
411686800003	PWA;PWA-G172-8317,MOTHER BD,SMT	
411686800002	PWA;PWA-G172-8317,MOTHER BD,T/U	
411686800008	PWA;PWA-G172-8317,PATA HDD BD	
411686800010	PWA;PWA-G172-8317,PATA HDD BD,SMT	
411686800009	PWA;PWA-G172-8317,PATA HDD BD,T/U	
411687200001	PWA;PWA-INVERTER BD,DA-1A08-D02/8317,	
411687200002	PWA;PWA-INVERTER BD,SMT,DA-1A08-D02/	
332810000197	PWR CORD;125V/7A,3P,BLACK,AMERICA	
271045107101	RES;.01 ,1W ,1% ,2512,SMT	PR1000
271034127101	RES;.012,1/2W,1%,2010,WSL2010,VISHAY,SMT	PR1018,PR1020
271586026101	RES;.02 ,2W,1%,2512,SMT	PR1008
271046407101	RES;.040 ,2W ,1% ,2512,SMT,PRC	
271046407103	RES;.040 ,2W ,1% ,2512,SMT,PRC,only Cyntec	R18A,R18B,R18C
271061000002	RES;0 ,1/16W,0402,SMT	PR1013,PR1021,PR110,PR45
271061000301	RES;0 ,1/16W,5% ,0402,SMT	PR1003,PR108,PR115,PR119
271071000002	RES;0 ,1/16W,5% ,0603,SMT	R26,R27

9. Spare Parts List(9)

Part Number	Description	Location(S)
271071000002	RES;0 ,1/16W,5% ,0603,SMT	R1,R12,R13,R14,R15,R3
271071000002	RES;0 ,1/16W,5% ,0603,SMT	PR111,R1018,R1145,R1154
271071000002	RES;0 ,1/16W,5% ,0603,SMT	R1476,R1477,R1521
271002000304	RES;0 ,1/8W,5% ,0805,SMT	R1457,R271,R282
271071112101	RES;1.1K ,1/16W,1% ,0603,SMT	PR74,PR79
271071154111	RES;1.54K ,1/16W,1% ,0603,SMT	PR80
271071152302	RES;1.5K ,1/16W,5% ,0603,SMT	R17,R19,R8
271061100501	RES;10 ,1/16W,5% ,0402,SMT	PR1001,PR73,R1107,R1171
271071100302	RES;10 ,1/16W,5% ,0603,SMT	R1391,R1389,R1392
271071102211	RES;10.2K,1/16W,1% ,0603,SMT	R1361
271061101103	RES;100 ,1/16W,1% ,0402,SMT	PR100
271071101101	RES;100 ,1/16W,1% ,0603,SMT	R144,R175,R191
271071101301	RES;100 ,1/16W,5% ,0603,SMT	R37
271061101304	RES;100 ,1/16W, 5%,0402,SMT	R1232,R201,SR1
271061104102	RES;100K ,1/16W,1% ,0402,SMT	PR1016,PR14
271071104101	RES;100K ,1/16W,1% ,0603,SMT	R7
271061104501	RES;100K ,1/16W,5% ,0402,SMT	PR1004,PR1017,PR13,PR18
271071104302	RES;100K ,1/16W,5% ,0603,SMT	R11,R15,R2,R38,R44,R48
271071104302	RES;100K ,1/16W,5% ,0603,SMT	R1428,R1429,R1431
271071104302	RES;100K ,1/16W,5% ,0603,SMT	R1519,R1520
271071107311	RES;107K ,1/16W,1% ,0603,SMT	PR31,PR84
271071103701	RES;10K ,1/16W,.1%,0603,SMT	PR113,PR114
271061103102	RES;10K ,1/16W,1% ,0402,SMT	PR101,PR1014,PR103,PR16
271071103101	RES;10K ,1/16W,1% ,0603,SMT	R75
271061103501	RES;10K ,1/16W,5% ,0402,SMT	R1021,R1025,R1041,R1065

Part Number	Description	Location(S)
271071103302	RES;10K ,1/16W,5% ,0603,SMT	R3,R4
271071103302	RES;10K ,1/16W,5% ,0603,SMT	R1140,R1143,R1149,R1195
271071106301	RES;10M ,1/16W,5% ,0603,SMT	R1073
271061121501	RES;120 ,1/16W,5% ,0402,SMT	R254,R260,R265,R267
271071121301	RES;120 ,1/16W,5% ,0603,SMT	R424,R62
271061137371	RES;13.7K,1/16W,.1%,0402,SMT	PR27
271061133101	RES;13.7K,1/16W,1%,0402,SMT	PR1010,PR61
271061134102	RES;130K,1/16W,1%,0402,SMT	PR1009
271071133101	RES;13K ,1/16W,1% ,0603,SMT	R280
271071143212	RES;14.3K,1/16W,1%,0603,SMT	R159,R171
271071151103	RES;15 ,1/16W,1% ,0603,SMT	R1077,R1078
271071151101	RES;150 ,1/16W,1% ,0603,SMT	SR2,R1557,R422,R423
271061152302	RES;15K ,1/16W,5% ,0402,SMT	R1368,R1369,R1559,R1560
271071153301	RES;15K ,1/16W,5% ,0603,SMT	R1268,R1290,R1528
271071169011	RES;169 ,1/16W,1% ,0603,SMT	R197
271071182214	RES;18.2K,1/16W,1%,0603,SMT	PR109
271071184301	RES;180K ,1/16W,5% ,0603,SMT	R13
271071184301	RES;180K ,1/16W,5% ,0603,SMT	R346
271071196211	RES;19.6K,1/16W,1% ,0603,SMT	R1362
271071191314	RES;191K ,1/16W,1% ,0603,SMT	PR12
271061102105	RES;1K ,1/16W,1% ,0402,SMT	PR59,PR75,PR78,PR81
271071102102	RES;1K ,1/16W,1% ,0603,SMT	PR15,R1019,R129,R133
271061102303	RES;1K ,1/16W,5% ,0402,SMT	R1118,R1199,R1200,R1202
271071102302	RES;1K ,1/16W,5% ,0603,SMT	R35,R39,R43
271071102302	RES;1K ,1/16W,5% ,0603,SMT	R1247,R1425,R409,R413

9. Spare Parts List(10)

Part Number	Description	Location(S)
271071102302	RES;1K ,1/16W,5% ,0603,SMT	R1451,R1452,R1453,R1454
271071105101	RES;1M ,1/16W,1% ,0603,SMT	R14
271061105501	RES;1M ,1/16W,5% ,0402,SMT	PR1005,PR1011,PR29,PR40
271071105301	RES;1M ,1/16W,5% ,0603,SMT	R40
271071105301	RES;1M ,1/16W,5% ,0603,SMT	R1050,R1110,R343
271071228301	RES;2.2 ,1/16W,5% ,0603,SMT	PR38,PR42
271003228101	RES;2.2 ,1/4W,1% ,0805,SMT	PR1019,PR92
271071221111	RES;2.21K,1/16W,1% ,0603,SMT	R211
271061222501	RES;2.2K ,1/16W,5% ,0402,SMT	R1153,R1162
271071225301	RES;2.2M,1/16W,5% ,0603,SMT	R34,R36
271061249211	RES;2.49K,1/16W,1% ,0402,SMT	PR25,PR30
271071249111	RES;2.49K,1/16W,1% ,0603,SMT	R6
271071249111	RES;2.49K,1/16W,1% ,0603,SMT	R286
271071274111	RES;2.74K,1/16W,1% ,0603,SMT	PR58
271061272102	RES;2.7K ,1/16W,1% ,0402,SMT	R1186,R1189,R1190
271071201301	RES;200 ,1/16W,5% ,0603,SMT	R14,R17
271061204102	RES;200K ,1/16W,1% ,0402,SMT	PR36,PR41
271071204302	RES;200K ,1/16W,5% ,0603,SMT	PR107
271061203701	RES;20K ,1/16W,.1%,0402,SMT	PR19
271061203102	RES;20K ,1/16W,1% ,0402,SMT	PR51,PR7,PR99,R367,R604
271071203101	RES;20K ,1/16W,1% ,0603,SMT	PR34
271061220501	RES;22 ,1/16W,5% ,0402,SMT	R102,R103,R108,R110
271071221301	RES;220 ,1/16W,5% ,0603,SMT	R1253
271061224501	RES;220K ,1/16W,5% ,0402,SMT	R383
271071226311	RES;226K ,1/16W,1% ,0603,SMT	PR6

Part Number	Description	Location(S)
271071244301	RES;240K ,1/16W,5% ,0603,SMT	R41
271061270431	RES;270K,1/16W,5%,0402,SMT	R388
271071287311	RES;287K ,1/16W,1% ,0603,SMT	PR26
271061202102	RES;2K ,1/16W,1% ,0402,SMT	PR46,R1465,R1466,R1482
271071202102	RES;2K ,1/16W,1% ,0603,SMT	PR63
271071202301	RES;2K ,1/16W,5% ,0603,SMT	R1257,R1267,R1533,R412
271071205101	RES;2M ,1/16W,1% ,0603,SMT	PR20
271071332111	RES;3.32K,1/16W,1% ,0603,SMT	R56
271071332302	RES;3.3K ,1/16W,5% ,0603,SMT	R341
271071335101	RES;3.3M,1/16W,1%,0603,SMT	R10
271071362101	RES;3.6K ,1/16W,1% ,0603,SMT	R315
271061392501	RES;3.9K ,1/16W,5% ,0402,SMT	R290,R297
271071304301	RES;300K ,1/16W,5% ,0603,SMT	R42
271061330501	RES;33 ,1/16W,5% ,0402,SMT	R1066,R1082,R1083
271071330302	RES;33 ,1/16W,5% ,0603,SMT	R1063,R1079,R1080
271061331304	RES;330 ,1/16W,5% ,0402,SMT	R27,R28,R31,R40
271071331301	RES;330 ,1/16W,5% ,0603,SMT	R16,R18,R20,R21,R22,R23
271071331301	RES;330 ,1/16W,5% ,0603,SMT	R1023,R1026,R1164
271061333501	RES;33K ,1/16W,5% ,0402,SMT	PR22,PR8
271071333301	RES;33K ,1/16W,5% ,0603,SMT	R1486,R371,R373
271071348812	RES;34.8 ,1/16W,1%,0603,SMT	R244,R253
271072383011	RES;383 ,1/10W,1% ,0603,SMT	R42
271002478301	RES;4.7 ,1/10W,5% ,0805,SMT	R1464
271002472301	RES;4.7K ,1/10W,5% ,0805,SMT	PR1,PR1006
271061472102	RES;4.7K ,1/16W,1% ,0402,SMT	PR1015,R395,R400

9. Spare Parts List(11)

Part Number	Description	Location(S)
271061472501	RES;4.7K ,1/16W,5% ,0402,SMT	PR10,PR11,R109,R1150,R1214
271071472302	RES;4.7K ,1/16W,5% ,0603,SMT	PR33,PR44,R1583,R1585
271071472302	RES;4.7K ,1/16W,5% ,0603,SMT	R1450
271061499212	RES;4.99K,1/16W,1% ,0402,SMT	PR3
271071499111	RES;4.99K,1/16W,1% ,0603,SMT	PR76
271071432112	RES;43K,1/16W,1%,0603,SMT	R1217
271071442113	RES;44.2 ,1/16W,1% ,0603,SMT	R174,R178
271002470301	RES;47 ,1/10W,5% ,0805,SMT	R1504,R1505
271061470501	RES;47 ,1/16W,5% ,0402,SMT	R1249,R1440,R1441,R332
271071470301	RES;47 ,1/16W,5% ,0603,SMT	R1375
271061471501	RES;470 ,1/16W,5% ,0402,SMT	PR35
271071471302	RES;470 ,1/16W,5% ,0603,SMT	R1
271071471302	RES;470 ,1/16W,5% ,0603,SMT	R1020,R1024,R1092,R1156
271061474501	RES;470K ,1/16W,5% ,0402,SMT	PR1002
271071475011	RES;475 ,1/16W,1% ,0603,SMT	R246
271061473501	RES;47K ,1/16W,5% ,0402,SMT	PR1012,R1175,R1231,R1286
271071473301	RES;47K ,1/16W,5% ,0603,SMT	R1
271071473301	RES;47K ,1/16W,5% ,0603,SMT	R340
271071499811	RES;49.9 ,1/16W,1% ,0603,SMT	R1069,R1070,R1071,R1072
271061499411	RES;499K ,1/16W,1% ,0402,SMT	PR17,PR69,PR94
271061512102	RES;5.1K ,1/16W,1% ,0402,SMT	PR102,R1242,R45,R46
271071562301	RES;5.6K ,1/16W,5% ,0603,SMT	R45
271071511812	RES;51.1,1/16W,1% 0603,SMT	R219
271061511302	RES;510 ,1/16W,5% ,0402,SMT	R1192,R1193,R189,R190
271071511301	RES;510 ,1/16W,5% ,0603,SMT	PR104

Part Number	Description	Location(S)
271061560501	RES;56 ,1/16W,5% ,0402,SMT	R1104
271071562811	RES;56.2 ,1/16W,1% ,0603,SMT	R1235,R1236,R1237,R1238
271071594101	RES;590K ,1/16W,1% ,0603,SMT	PR1007
271071604111	RES;6.04K,1/16W,1% ,0603,SMT	PR118
271061619211	RES;6.19K,1/16W,1% ,0402,SMT	PR21
271071634111	RES;6.34K,1/16W,1% ,0603,SMT	R1205
271071682101	RES;6.8K ,1/16W,1% ,0603,SMT	R5
271061682501	RES;6.8K ,1/16W,5% ,0402,SMT	R1009,R1010
271071619811	RES;61.9 ,1/16W,1% ,0603,SMT	R145,R67
271071634211	RES;63.4K,1/16W,1% ,0603,SMT	PR47
271071649211	RES;64.9K,1/16W,1% ,0603,SMT	PR39
271061680303	RES;68,1/16W,5%,0402,SMT	R331,R338
271061681501	RES;680 ,1/16W,5% ,0402,SMT	R181,R206,R207,R215,R216
271071683301	RES;68K ,1/16W,5% ,0603,SMT	R1489
271071698311	RES;698K ,1/16W,1% ,0603,SMT	R5
271071785101	RES;7.87K,1/16W,1%,0603,SMT,PWR	R418,R419
271071713102	RES;715 ,1/16W,1% ,0603,SMT	R140
271071732011	RES;732 ,1/16W,1% ,0603,SMT	R12
271071750101	RES;75 ,1/16W,1% ,0603,SMT	R1038,R1039,R139
271061750501	RES;75 ,1/16W,5% ,0402,SMT	R214,R234
271071750302	RES;75 ,1/16W,5% ,0603,SMT	R248,R262
271011822101	RES;8.25K,1/16W,1%,0603,SMT	R1029
271072822101	RES;8.2K ,1/10W,1% ,0603,SMT	R1062
271061822501	RES;8.2K ,1/16W,5% ,0402,SMT	R1370
271071822301	RES;8.2K ,1/16W,5% ,0603,SMT	R164,R165,R166,R339

9. Spare Parts List(12)

Part Number	Description	Location(S)
271061862101	RES;8.66K ,1/16W,1% ,0402,SMT	PR56
271071887111	RES;8.87K,1/16W,1% ,0603,SMT	R1061
271071806812	RES;80.6 ,1/16W,1% ,0603,SMT	R221
271071825811	RES;82.5 ,1/16W,1% ,0603,SMT	R68
271071824101	RES;820K ,1/16W,1% ,0603,SMT	R2
271071823103	RES;82K,1/16W,1%,0603,SMT	R4
271071912101	RES;9.1K ,1/16W,1% ,0603,SMT,PRC	R7
271071953212	RES;9.53K,1/16W,1%,0603,SMT	R3
271071913101	RES;91K ,1/16W,1% ,0603,SMT	PR106
271071931211	RES;93.1K,1/16W,1% ,0603,SMT	PR37
271071976311	RES;976K ,1/16W,1% ,0603,SMT	PR28
451678500031	ROM ME KIT;8081	
271571680302	RP; 68*8 ,16P,1/16W,5% ,1606,SMT	RP22,RP23,RP24,RP25
271571100301	RP;10*8 ,16P ,1/16W,5% ,1606,SMT	RP10,RP11,RP12,RP13
271621103302	RP;10K*8 ,10P,1/32W,5% ,1206,SMT	RP1008
271611153301	RP;15K*4 ,8P ,1/16W,5% ,0612,SMT	RP2,RP3,RP6
271611330301	RP;33*4 ,8P ,1/16W,5% ,0612,SMT	RP1003
271611472301	RP;4.7K*4,8P ,1/16W,5% ,0612,SMT	RP1000,RP1006,RP107
271621472302	RP;4.7K*8,10P,1/32W,5% ,1206,SMT	RP1009
271571470301	RP;47*8 ,16P ,1/16W,5% ,1606,SMT	RP17,RP18,RP19,RP20,RP21
271611750301	RP;75*4 ,8P ,1/16W,5% ,0612,SMT	RP1
271611822301	RP;8.2K*4,8P ,1/16W,5% ,0612,SMT	RP1004
345686800004	RUBBER; LCD,8317	
340675300005	SCREW ASSY;CPU,8080	
342686800003	SCREW;6-ANGLE,8317	

Part Number	Description	Location(S)
371102010252	SCREW;M2L2.5,K-HEAD(+),NIB/NLK	
371102030303	SCREW;M2L3,K-HEAD(+),NIW/NLK	
371102030303	SCREW;M2L3,K-HEAD(+),NIW/NLK	
340686800005	SHIELDING ASSY;HDD,8317	
340686800030	SHIELDING ASSY;TOP COVER,8317	
333678700002	SHRINK TUBE; 600V, 125℃, Φ2L8mm, BLACK;	
333020000003	SHRINK TUBE;600V,105'C,D0.8*5MM,PRC	
333050000107	SHRINK TUBE;UL,600V,105'C,ID2.5*8MM,PRC	
361400003021	SOLDER CREAM;NOCLEAN,P4020870980	
361400003021	SOLDER CREAM;NOCLEAN,P4020870980	
361400003037	SOLDER CREAM;SH-6309,SHENMAO,63/37,PR	
365350000003	SOLDER WIRE;0.8MM,SN43/PB43/BI14,N/C,TE	
600100010009	SOLDER WIRE;63/37,0.8,CM,N/C,PRC	
600100010009	SOLDER WIRE;63/37,0.8,CM,N/C,PRC	
600100010009	SOLDER WIRE;63/37,0.8,CM,N/C,PRC	
600100010005	SOLDER WIRE;63/37,0.8,NA,N/C,PRC	
370102010609	SPC-SCREW,M2L6,K-HD,D3.5,t0.7,NIW,NLK	
370102010609	SPC-SCREW,M2L6,K-HD,D3.5,t0.7,NIW,NLK	
370686800001	SPC-SCREW;M1.7L3,NIW/NLK,K-HD	
370102611001	SPC-SCREW;M2.6L10,NIB,K-HD,NY	
370102610401	SPC-SCREW;M2.6L4,K-HD,t0.8,NIB/NLK	
370102610401	SPC-SCREW;M2.6L4,K-HD,t0.8,NIB/NLK	
370102610603	SPC-SCREW;M2.6L6,K-HD,NIB/NLK	
370102610603	SPC-SCREW;M2.6L6,K-HD,NIB/NLK	
370102010204	SPC-SCREW;M2L2,NIW/NLK,K-HD	

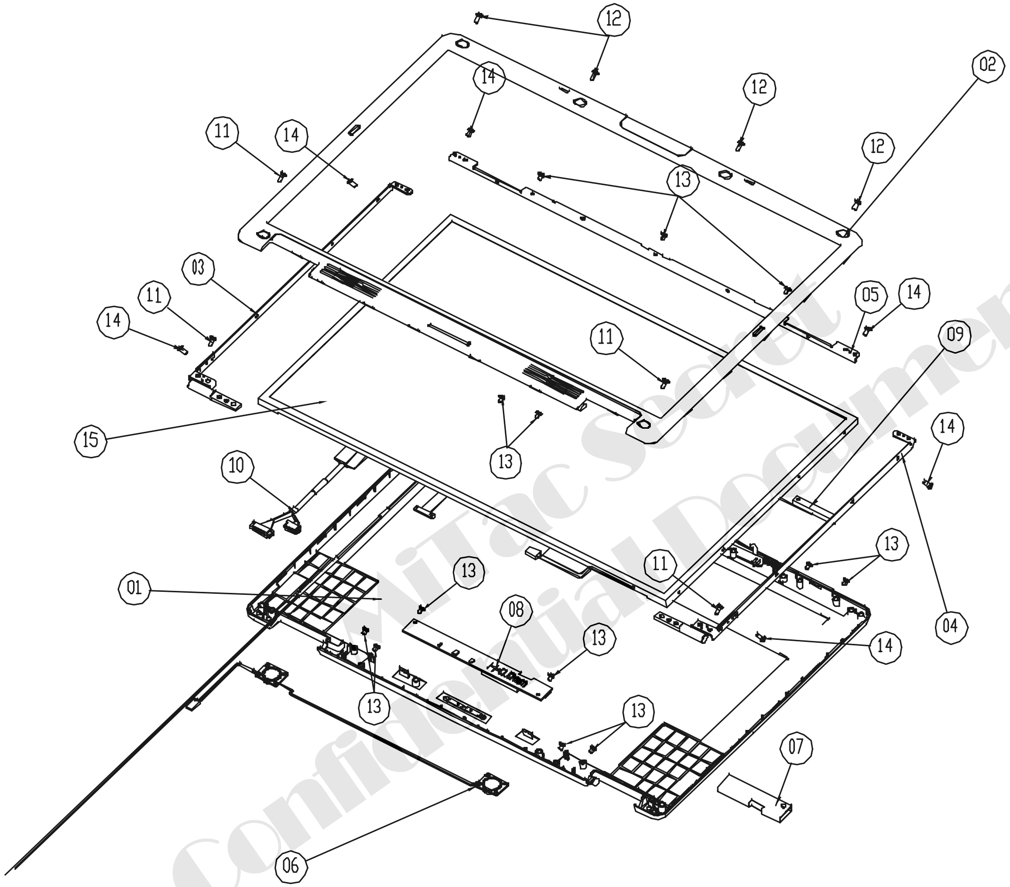
9. Spare Parts List(13)

Part Number	Description	Location(S)
370102010405	SPC-SCREW;M2L4,NIW,K-HD(+),NYLOK	
370102010405	SPC-SCREW;M2L4,NIW,K-HD(+),NYLOK	
370102010802	SPC-SCREW;M2L8,K-HD(+),NIB	
370103010303	SPC-SCREW;M3L3,NIB,K-HD(+)	
340686800032	SPEAKER ASSY;HOUSING,L,FORGRAND,8317	
340686800010	SPEAKER ASSY;HOUSING,L,VECO,8317	
340686800033	SPEAKER ASSY;HOUSING,R,FORGRAND,8317	
340686800011	SPEAKER ASSY;HOUSING,R,VECO,8317	
340686800031	SPEAKER ASSY;HOUSING,WOOFER,FORGRA	
348686800001	SPEAKER ASSY;HOUSING,WOOFER,VECO,831	
340686800021	SPEAKER ASSY;LCD,2016KMG04,VECO,8317	
340686800034	SPEAKER ASSY;LCD,FORGRAND,8317	
226600030332	SPONGE;320*290*10,CAIMAN,PWR	
345686800027	SPONGE;AUDIO,8317	
345686800032	SPONGE1;MB,8317	
345686800033	SPONGE2;MB,8317	
377686800001	S-STANDOFF;M2.6DP6.5H6L1,NW	MTG1001
342686800001	STAND OFF;AM20-60, ASCEND,ATE-S-078,831	MTG1003,MTG1004
342681900006	STAND OFF;M20-H2.0,8556	MTG1,MTG2
297004010001	SW;PUSH BUTTOM,5P,SPST,12VDC,50mA,,H3	SSW1,SSW2,SW1
297150100014	SW;SLIDE,SPDT,6P,500V/5A,T-MEC,SS040-P02	SW1000,SW1001,SW102
337100200002	SW;TACT,RIGHT ANGLE,4P,T-MEC,TC019-PS	SW1003,SW1004,SW1005
225600000061	TAPE;ADHENSIVE,DOUBLE-FACE,W20,UL,PR	
225678800003	TAPE;ADHESIVE TAPE,KRAFT PAPER,W=48,	
622200000008	TAPE;CARTON,2.5"W,30M/RL,PRC	

Part Number	Description	Location(S)
225600000276	TAPE;INSULATING,POLYESTER FILM,12MM,	
225600000054	TAPE;INSULATING,POLYESTER FILM,17.5M	
338536010053	TF041-BATTERY;LI,3.6V/2.2AH,CGR18650C,PA	
310111103027	THERMISTOR;10K,1%,RA,DISK,103AT-4,only	T1
310111103011	THERMISTOR;10K,1%,RA,DISK,103AT-4,PRC	
442686800002	TOUCH PAD MODULE;TM61PDZG391	
288227002006	TRANS;2N7002LT1,N-CHANNEL FET,ESD	PQ1004,PQ1009,PQ1010
288227002006	TRANS;2N7002LT1,N-CHANNEL FET,ESD	Q1066,Q1067,Q1068
288203404001	TRANS;AO3404,42mOHM,N-MOSFET,TO-236	Q1037,Q1051,Q1078
288203413001	TRANS;AO3413,P-MOSFET,SOT-23	Q1004,Q1020,Q1024,Q7,Q9
288204406001	TRANS;AO4406,N-MOS,.0165OHM,SO8	PU1007,PU1008,PU1011
288204407001	TRANS;AO4407,P-MOS,.01OHM,SO8,SMT	PQ1003,PQ1005,PQ107
288204409001	TRANS;AO4409,P-MOSFET,SO-8P,MSL,PWR	Q2A,Q2B,Q3B,Q3C
288204410010	TRANS;AO4410,N-MOSFET,ID=18A,0.0065OH	PU1006,PU1009,PU1010
288204422001	TRANS;AO4422,24mOHM,N-MOSFET,SOIC-8	PU1,PU4,PU9
288204606001	TRANS;AO4606,N&P-MOSFET,SO8,SMT,PWR	U1,U3
288204702002	TRANS;AO4702, N-MOSFET,WITH SCHOTTK	PU3,PU5,PU8
288204807001	TRANS;AO4807,DUAL PMOS,5A,SO8	PU1002
288204900001	TRANS;AO4900,DUAL N-MOSFET WITH SCH	U10,U1006,U13
628820014401	TRANS;DTA144EKA,PNP,100MA,50V,SOT-23,	Q6,Q7
288200144002	TRANS;DTA144WK,PNP,SMT	PQ1008
288200144003	TRANS;DTC144TKA,N-MOSFET,SOT-23	Q1010,Q1015,Q1016
288200144001	TRANS;DTC144WK,NPN,SOT-23,SMT	PQ1
288202222001	TRANS;MMBT2222AL,NPN,TO236AB	PQ1006
288203904010	TRANS;MMBT3904L,NPN,Tr35NS,TO236AB	Q10,Q1002,Q1006,Q1007

9. Spare Parts List(14)

Part Number	Description	Location(S)
288203906018	TRANS;MMBT3906L,PNP,Tr35NS,TO236AB	Q1045
288204350001	TRANS;PBSS4350Z,50V,5A,SOT223	PQ1015
288204788001	TRANS;SI4788CY,P-MOS,5A1.8~5.5V,SO8	U1011,U18,U7
288208107001	TRANS;TPC8107,13A/30V,P-MOSFET,SSOP8,P	
313001050492	TRANSFORMER;LG-2402P, 24 PIN, SMT, LAN	U1017
373101713502	T-SCREW;B.M1.7L3.5,HD04t0.25,0,BCT	
311821002101	VR;10K,CF,.02W,30%,RVR16H-013-B10K	VR1000
332110020104	WIRE;#20,UL1007,105MM,RED,YIYI;PWR	
332110020067	WIRE;#20,UL1007,40MM,BLACK,PRC	
332110020096	WIRE;#20,UL1007,40MM,BLACK,YIYI;PWR	
332110020042	WIRE;#20,UL1007,70MM,RED,PRC	
332110020108	WIRE;#20,UL1007,70MM,RED,YIYI;PWR	
332110020089	WIRE;#20,UL1007,L105mm,RED,PRC	
332110026134	WIRE;#26,UL1007,135MM,BLACK,PRC,PWR	
332110026135	WIRE;#26,UL1007,40MM,ORANGE,PRC,PWR	
332110026007	WIRE;#26,UL1007,80MM,YELLOW	
332110026124	WIRE;#26,UL1007,80MM,YELLOW,YIYI;PWR	
273001050235	XFMR;CI8.5,25T/2150T,145mH,ONLY TMP,PW	T1
274011431414	XTAL;14.318MHZ,32PF,50PPM,8*4.5,2P	X1001
274012457406	XTAL;24.576MHZ,16PF,50PPM,8*4.5,2P	X1003
274012500401	XTAL;25MHZ,30PPM,18PF,4P,SMT	Y1001
274013276103	XTAL;32.768KHZ,20PPM,12.5PF,CM200	X1000
		P/N526268681003



ITEM	PART NO	DESCRIPTION	Q'TY	TYPE	REMARK
01	3406B6BD0014	HOUSING ASSY;LCD,8317	1	ASSEMBLY	
02	3406B6BD0015	COVER ASSY;LCD,8317	1	ASSEMBLY	
03	3406B6BD0016	HINGE;L,LG,JARLLY	1	PART	
04	3406B6BD0017	HINGE;R,LG,JARLLY	1	PART	
05	340686800020	BRACKET;UP,LCD,8317	1	PART	
06	3406B6BD0021	SPEAKER ASSY;LCD,2D16KMGD4,VECO,	1	ASSEMBLY	
07	346686800012	INSULATOR;INVENTER,8317	1	PART	
08	412687200D01	PCB ASSY;INVERTER BD,APOLLON	1	ASSEMBLY	
09	422686B000D2	ANTENNA;WIRELESS,BLUE TEETH,LCD,	1	PART	
10	422686B000D6	CABLE ASSY;LCD,DDC,8317	1	PART	
11	37D10261D603	SPC-SCREW;M2.6L6,K-HD,NIB/NLK	4	PART	
12	370102010609	SPC-SCREW.M2L6.K-HD.D3.5.t0.7.NIW.NLK	4	PART	
13	3711D203D303	SCREW;M2L3,K-HEAD(+),NIW/NLK	13	PART	
14	370102010405	SPC-SCREW;M2L4,NIW,K-HD(+),NYLOK	6	PART	
15	413D00020013	LCD PANEL ; LG	1	PART	

ITEM	CONTENTS OF CHANGE	RVS	CHK	APV	M/D/Y
					/ /
					/ /
					/ /
					/ /
					/ /

TOL± RANGE	M1	M2	S1	S2	P1	P2	C	B
0~6	.05	0.1	.15	0.2	.05	0.1	0.5	.15
6-30	0.1	0.2	.15	.25	0.1	.15	1	.15
30-80	.15	.25	0.2	0.3	0.2	0.4	2	.25
80~180	.15	0.3	.25	.45	0.4	0.8	3	.25
180~315	0.2	0.3	0.4	0.6	0.6	1.2	3	0.3
315-800	0.3	0.8	0.7	1.1	0.8	1.5	4	0.5

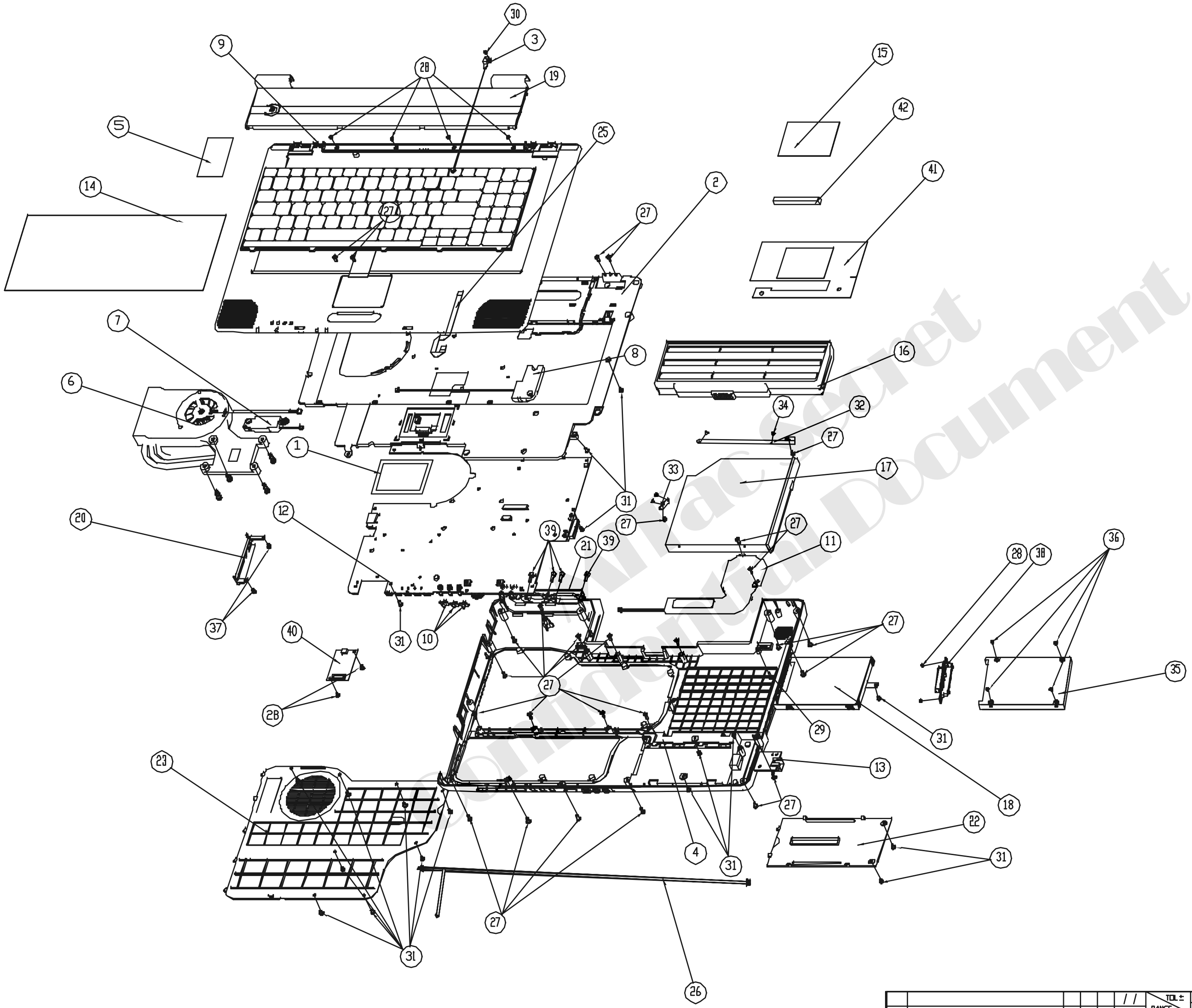
DATE	10-Dec-04	MATERIAL	SEE NOTES	TREATMENT	REMARK
UNIT	MM	SCALE	1.00	DRAWING NAME	LCD ASSY 8317
DRAWN	DESIGNED	CHECKED	APPROVED	MATERIAL NO.	MF 441686800007 R 00A

MiTAC Technology Corp.

SHEET NO. 1 of 1

model name:CABLE BOARD TO BOARD

file name:



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ITEM	PART NO	DESCRIPTION	Q'TY	TYPE	REMARK
1	346686801106	INSULATOR;T/P,8317	1	PART	
2	340686800030	SHIELDING ASSY;TOP COVER,8317	1	PART	
3	297686800001	LCD SWICH?ASSY;1DT017-PUAA-A,T-MEC,8317	1	ASSEMBLY	
4	340686800101	HOUSING ASSY;CASE,8317	1	ASSEMBLY	
5	346686800023	INSULATOR;SHIELDING,8317	1	PART	
6	340686900008	HEATSINK ASSY;AMD,AVC,8317	1	ASSEMBLY	
7	340686800110	SPEAKER ASSY;HOUSING,L,VECO,8317	1	PART	
8	340686800011	SPEAKER ASSY;HOUSING,R,VECO,8317	1	PART	
9	340686810012	COVER ASSY;TOP,8317	1	ASSEMBLY	
10	344686800010	LATCH;FUNCTION,8317	3	PART	
11	348686800001	SPEAKER ASSY;HOUSING,WOOFER,VECO	1	PART	
12	411686800001	PWA;PWA-G172-8317,MOTHER BD	1	ASSEMBLY	
13	411686800004	PWA;PWA-G172-8317,MODEM BD	1	ASSEMBLY	
14	346686800021	MYLAR;KEYBOARD,8317	1	PART	
15	442164900012	TOUCH PAD;TM41P-311,SYNAPTICS	1	ASSEMBLY	
16	442677000101	BATT ASSY;11.1V/6.0AH,LI,PAN,Lyn	1	ASSEMBLY	
17	451678500031	ROM ME KIT;8081	1	ASSEMBLY	
18	451686800001	HDD ME KIT;8317	1	ASSEMBLY	
19	340686810013	COVER ASSY;KB,8317	1	ASSEMBLY	
20	344686801106	COVER;AUDIO,8317	1	PART	
21	344686801105	COVER;VGA,8317	1	PART	
22	340686900002	COVER ASSY;HDD,8317	1	ASSEMBLY	
23	340686800003	COVER ASSY;CPU,8317	1	ASSEMBLY	
24	340686800003	COVER ASSY;CPU,8317	1	ASSEMBLY	
25	422686801107	FFC;TOUCH PAD,8317	1	PART	
26	422686800001	CABLE ASSY;MDC,CONAX,8317	1	ASSEMBLY	
27	370102610603	SPC-SCREW;M2.6L6,K-HD,NIB/NLK	29	PART	
28	371102030303	SCREW;M2L3,K-HEAD(+),NIV/NLK	8	PART	
29	370102611002	SPC-SCREW;M2.6L10,K-HD,NIV/NLK	1	PART	
30	370686800101	SPC-SCREW;M1.7L3,NIV/NLK,K-HD	1	PART	
31	370102610405	SPC-SCREW;M2.6L4,K-HD,t0.8,NIB/NLK	18	PART	
32	342672200010	BRACKET;CD-ROM,8500	1	PART	
33	342676401103	BRACKET-REAR,CDROM,APOLLON	1	PART	
34	370102010204	SPC-SCREW;M2L2,NIV/NLK,K-HD	4	PART	
35	451686800001	HDD ME KIT;8317	1	ASSEMBLY	
36	370103010303	SPC-SCREW;M3L3,NIB,K-HD(+)	4	PART	
37	370102010405	SPC-SCREW;M2L4,NIV,K-HD(+),NYLOK	2	PART	
38	411686800013	PWA;PWA-G172-8317,SATA HDD BD	1	ASSEMBLY	
39	342686801103	SCREW;6-ANGLE,8317	4	PART	
40	411686800004	PWA;PWA-G172-8317,MODEM BD	1	ASSEMBLY	
41	346686801120	AL-SHEET;ASSY,TOP SHIELDING,8317	1	ASSEMBLY	
42	345686800022	GASKET;TOP COVER,8317	1	PART	

ITEM	CONTENTS OF CHANGE	RVS	CHK	APV	M/D/Y
					/ /
					/ /
					/ /
					/ /
					/ /

TOL ± RANGE	M1	M2	S1	S2	P1	P2	C	B
0~6	.05	0.1	.15	0.2	.05	0.1	0.5	.15
6-30	0.1	0.2	.15	.25	0.1	.15	1	.15
30-80	.15	.25	0.2	0.3	0.2	0.4	2	.25
80~180	.15	0.3	.25	.45	0.4	0.8	3	.25
180~315	0.2	0.5	0.4	0.6	0.6	1.2	3	0.3
315-800	0.3	0.8	0.7	1.1	0.8	1.5	4	0.5

DATE	10-May-05	MATERIAL	SEE NOTES	TREATMENT	REMARK
UNIT	MM	SCALE	1.00	DRAWING NAME	EXPLODED 8317 ASSY
DRAWN	DESIGNED	CHECKED	APPROVED	MATERIAL NO.	MF R 00A

MiTAC Technology Corp.

SHEET NO. 1 of 1

model name8317-STRU

file nameASSY 8317

Reference Material

❖ AMD Model K8	AMD, INC
❖ ATI RS480M North Bridge	ATI, INC
❖ ULI M1573 South Bridge	ULI, INC
❖ HITACHI H8S/2140	HITACH, INC
❖ 8317 Hardware Engineering Specification	*Technology Corp*/MITAC

SERVICE MANUAL FOR 8317

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